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STS A HUMAN FACTORS ANALYSIS OF VOICE COMMUNICATIONS PRACTICES IN AIR TRAFFIC CONTROL

VOLUME II
SUPPORTING DATA

PREPARED FOR
HUMAN FACTORS BRANCH
RESEARCH DIVISION
BUREAU OF RESEARCH AND DEVELOPMENT
FEDERAL AVIATION AGENCY

UNDER CONTRACT FAA/BRD-44
BY
OPERATIONS RESEARCH GROUP

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267 58,





CONVAIR / POMONA

CONVAIR DIVISION OF GENERAL DYNAMICS CORPORATION

### HUMAN FACTORS ANALYSIS OF VOICE COMMUNICATIONS PRACTICES IN AIR TRAFFIC CONTROL

VOLUME II
SUPPORTING DATA

THIS REPORT HAS BEEN PREPARED BY CONVAIR/POMONA FOR THE AVIATION RESEARCH AND DEVELOPMENT SERVICE (FORMERLY BUREAU OF RESEARCH AND DEVELOPMENT), FEDERAL AVIATION AGENCY, UNDER CONTRACT NO. FAA/BRD-44. THE CONTENTS OF THIS REPORT REFLECT THE VIEWS OF THE CONTRACTOR, WHO IS RESPONSIBLE FOR THE FACTS AND FOR THE ACCURACY OF THE DATA PRESENTED HEREIN. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL POLICY OF THE ARDS OR THE FAA.

MALCOLM SMITH LARRY KASHDAN LARRY SENN LOHN REEVES JACK ALLEN

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#### INTRODUCTION

This is the second volume of a two-volume final report of a project performed under Contract FAA/BRD-44 for the Federal Aviation Agency by the Operations Research Group of Convair-Pomona. It presents a comprehensive compilation of processed data based on a series of communications measures defined for the purpose of analyzing and describing the Miami ATC complex. The scope of the project did not include a thorough statistical analysis of the data, but the data necessary for such an analysis are given in this volume in convenient tabular form.

For convenience in rapidly comparing position or facility descriptions, the data are presented in chart form as well as tabular form. The first two sections contain descriptive tables and charts based on R/T communications with pilots. Section III contains the data plots on which are based many of the conclusions discussed in Volume I. The report concludes with a section of coordination communications data.

The bulk of the data presented is based on a 1959 data collection program, with additional data collected in 1960 presented for comparison. The data are given in the form of "cycles" of tables and charts. That is, the data with respect to a particular measure are given first for the overall facility totals and then for individual positions. Each cycle of tables or charts is preceded by a prief description of the cycle and the measures used, in order to a poid misunderstanding. Unless otherwise specified, and charted data are based on the 1959 data samples. The charts for the Radar Approach Control position and the Radar Departure Control position represent only 1960 data and no further identification will be made. Detailed discussions of results and concepts will be found in Section I of Volume I. The present volume is restricted to the presentation of the data on which are based the discussions of Volume I.

#### SECTION I

#### VOICE COMMUNICATIONS CONTENT

The analysis of the content of the communications recorded at Miami was based on a new approach created for this project. Since detailed data are available for frequency of message occurrence, word counts, etc., a generalized classification technique was formulated. Each R/T contact was defined to consist of essentially three phases:

Phase 1 - Call-up and response

Phase 2 - Interchange of messages

Phase 3 - Acknowledgment.

Since Phases 1 and 3 consist of purely stereotyped material, just Phase 2 messages were analyzed. The data in this Section, then, pertain only to messages following the call-up and response and preceding the final acknowledgment (or contact termination).

Each Phase 2 message delivered by a pilot or controller was classified as a "Data" message, an "Information" message, or a "News" message in accordance with the definitions of Figure I-1.

#### Figure I-1 MESSAGE CLASSIFICATION MATRIX

	Necessary System Input and/or Requires Action	Not a Necessary System Input and Requires No Action
100% EXPECTED	Information	DATA
NOT 100%	NEWS	DATA

Message "expectancy" refers to message type rather than message content, and "100% Expected" is interpreted to mean "100%, as nearly as can be determined".

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"Requires action" refers to the necessity for a message recipient to take some definite, non-trivial action in response to the message. (Henceforth, "DIN" will be used to denote "Data, Information, and News" when used as an adjective. Further, the three message types will always be capitalized to distinguish them from usual meanings.)

To illustrate, a compulsory position report would be classified as Information because it is expected and a necessary system input. An instruction to change altitude immediately because of a potential confliction would be classified as News because it is unexpected and a necessary system input. Finally, if a local controller issues a "hold" and then gives the reason for the hold, the explanation would be classified as Data since it is not a necessary system input. (It must be pointed out, however, that good reasons do exist for giving such explanations to pilots.)

The second of th

#### A. DIN TABLES

Tables I-1, I-2, and I-3 show the overall DIN statistics for each position in the Tower, Center, and Station, respectively. A further breakdown of the statistics is given for each control position in the Tower and Center in Tables I-4 through I-15. The latter statistics are based on the two-hour sample period which was basic in the sampling procedure. DIN data were examined for shorter time intervals, but no significant differences from the two-hour results were found.

In interpreting the tables, it should be noted that the DIN percentages for the pilot messages total 100%, as do those for the controller. The final column of each table gives the DIN percentages (or "DIN profiles") obtained at each position by combining pilot and controller messages to get an overall index. The data are further broken down by aviation category, and sample sizes in numbers of messages are given to indicate the reliability of the data.

I

Table I-1

TOWER
MESSAGE CLASSIFICATION TOTALS

TIN' POM	ANU			_				Vol	339-84 ame II	Ju Pa	ne i ge 4
L L (%)	NEESS SEESS	24×4	27.h	28°3	38.3	23.9	22.1 22.1 25.3	22.3	17.5 25.2 23.4	20.1	
CLASSIFICATION OF TOTAL MESSAGES (%)	LINEO	2487 1487 1487 1487 1487 1487 1487 1487 1	60.8	64.5 61.01	53.9	61.0	55.00 55.00	58.6	63.7 61.7 61.1	62.7	
CLAS	DATA	4501 100 100 100 100 100 100 100 100 100	11.8	20.6 10.6	7.8	15.2	19.55 19.05 10.01	19.0	18.8 13.0 15.6	17.2	
TION LER (%)	NEWS	13.0 22.5 15.05	ı	22.27	15.4	14.3	18.3 20.7 22.0	19.h	25,52 25,52 26,63	<b>ग•ा</b> ट	
CLASSIFICATION OF CONTROLIER MESSAGES (%)	TIMES	99977 975 W.	76.7	27. 1. 1.	76 17	78.3	69.3 70.9 67.0	68.2	%%% %%% %•41	6l <sub>1</sub> •0	
CLAS OF C	DATA	20°2	7-7	7 m c	6,4	7.04	12.8 8.4 11.0	11.7	15.6 11.11	34.6	
TION T	NEWS	% % % % % % % % %	15.0	8 % { 6 % }	73.8	39.lı	37.28 31.28	27.7	15.8 24.3 18.1	17.2	
CLASSIFICATION OF PILOT		1.000 1.000	36.6	38°7	15.9	32.9	11.2 13.7 34.4	39.8	58.7 51.4 63.7	59.9	
OLAS O	DATA	25.6 10.1	18.4	1962	10.3	27.7	37°0 37°1 37°1	32.4	25.55 1.8.1	22.9	
	HOMBER OF RESSAUES	1,522 312 519	472 2825	767	327	1617	2471 340 857	3998	265 265 265	3645	
	S RI E	क्रिक्ट्र	250	162	282 195	1000	1578 237 555	2370	655 78 383	9111	
	PILOT	225.3	216	ઌૢ૿ૹ	135	617	893 103 302	1298	310 182	23	
	AVIATION	Air Carrier Military Gen Avlation	Grnd Vehicles OVERALL	Air Carrier Military	Gen Aviation Grnd Vehicles	OVERAIL	Air Carrier Military Gen Aviation	OVERALL	Air Carrier Military Gen Aviation	OVERALL	
	POSITION AND	CHOUND CONTROL (10 Hours - 1959)		GROUND CONTROL (1, Howrs - 1960)			LOCAL CONTROL (10 Hours - 1959)		LOCAL CONTROL (2 Hours - 1960)		-

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Table I-1 (Cont'd)

TOWER

MESSAGE CLASSIFICATION TOTALS

R/POMON	A						٠.	Volume I	Ĭ	Page 5
TION (%)	NEWS	22.0 27.6 33.3	22.6	14.0 23.0 22.4	16.3	22.6 27.8 18.2	22.6	16.4	16.5	
CLASSIFICATION OF TOTAL MESSAGES (%)	INFO	1,6.6 1,1.1 20.0	16.3	42.1 37.8 39.1	41.2	1,7.5 52.8 1,0.9	47.5	35.2 33.3 37.2	35.4	
CLAS O MES	DATA	31.4 28.0 16.7	31.2	2008 8008 9004	<b>4.24</b>	29.9 19.4 10.9	29.8	7°97 7°97 7°97	1,8,1	
TION LER (%)	NEGO	31.8 34.0 15.1	32.2	16.5 30.4 27.8	19.7	55.50 14.44	41.3	19.7	19•5	
CLAS: TCATION OF C. TROLLER NESSAGES (%)	INFO	53.6 15.7 27.3	52.6	74°54 38°0 45°4	50.9	9,8 K	48.9	15.75 15.70	16.7	
CLAS OF C	DATA	20.2 20.2 27.3	15.2	29.1 31.5 29.8	4.62	12.6	9.8	33.7 23.47 24.08	33.8	
ATION OF (%)	NEAS	9.8	10.2	10.6 10.7 15.0	11.5	711		12.2	12.7	ļ
CLASSIFICATION OF PILOT NESSAGES (%)	INFO	37.9	38.1	24.7 37.5 34.6	27.5	16.0 66.7 30.8	16.2	20.6	21.2	
CLAS O MES	DATA	52.3 12.8 100.0	51.8	64.7 51.8 50.4	61.0	159.6 33.3 69.2	10.5	57.2 100.0 55.0	1.99	
SSAGES	TOTA!	2971 286 15	3272	1960 148 575	2683	1701 36 22	1759	727 6 86	819	
SESTREE OF MESSAGES	CNTLR	1645 188 11	1844	7411 92 335	1574	817 18 9	, [2	1,07	155	
MIMBE	PILOT	1325 98 4	11,28	813 56 240	1109	857 18 13	888	320	363	
NOTATA	CATEGORY	Air Carrier Military Gen Aviation	OVERAIL	Air Carrier Military Gen Avlation	OVERALL	Air Carrier Military Cen Aviation	TI WEED AT I	Air Carrier Nilitary	OVERALL	
CINA MOTENT SOCI	SAPPLE SIZE	APPROACH CONTROL (ANC)		APPROACH CONTROL (RADAR)		DEPARTURE CONTROL (ANC)	((() = smou zt)	DEPARTURE CONTROL (RADAR)	(4 nom 5 - 2500)	

.

CENTER

(	:ONVA	IR/	POMO	NA							TM 339- Volume	.84 []	Jur Pag	ne 1960 ge_6	
			જિ	SWEWS	19 % 4 19 % 4 19 % 4	26.6	26.3 40.1 33.3	27.6	27.9	29°h	888 888 949	24.7	13.5	86.3	
		CLASSIFICATION	<u>ا</u> ا	2	33.00 34.00 34.00	38.9	34.6	10 P	38.6 31.1	37.6	12.9 12.9 25.0 25.0	43.7	10°0 10°0	H.H.	
		CLAS	MES O	DATA	29°9 51°0	34.4	32.9 25.0 19.0	32.1	88 8.50 5.60	33.0	888 846 646	31.6	1,2.2	1,2.6	
		TION	1EH (%)	NE9S.	26.08 26.08	39.3	10.h 119.1 22.22	1,0.9	35.8	38.7	33.3	į	35°0 80°8	33.8	
		CLASSIFICATION	F CONTROLLER	LINEO	8 48 8 48	37.3	38.77 73.65 73.65	37.3	1,2.0 25.7	39.8	150.00 100.00	50.0	20 20 20 20 20 20 20 20 20 20 20 20 20 2	21,06	
		CLAS	OF CO	DATA	23 16.0 16.0 16.0	23.h	23.1	21.8	22.2	21.5	12.5	77,2	10.8 50.0	11.5	
		m TON	T(%)	NEGS	10.0		32.4	111.5	18.9	19.1	15.1 8.0 33.3	11,6	18.0	16.7	
	TOTAIS	NOT A POST DITOR AND TON	OF PILOT	SEN I	177	10.8	25.0 25.0	13.4	₩ 8.0.	35.1	32.0	37.9	38.0	39 eh	
ı	CATION	100	2 (C) 18	ATAC	14 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	47.1	12.6 39.2 33.3	h2•2	1,6,3	1,5.8	25.09 0.09 56.09	17.h	17.90	13.9	
	MESSAGE CLASSIFICATION TOTALS		o i i	TOTAL	1936 112 188	22115	1178 101 12	1303	857 135	992	17 67 7 7	1,85	577 772	505	
	ESSAGE		į	OF MESSAGES	10 <sup>1</sup> 3	7021	₹£0°	, 9 <del>1</del> 19	155	525	207 24 1	232	260 242	284	
	~1			PLIOT	89. 103.	פון ליוטר	594 172	657	1,02	197	225 3	253	20 12	221	
				ATTATION	Air Carrier Military	Gen Aviation	Air Carrier Military	Gen Avlation	Air Carrier	OVERALI.	Air Carrier Military	OVERALL	Air Carrier Military	OVERALL	
				POSITION STATE	D2 RADIO CONTROL (11 Hours - 1959)		D2 RADIO CONTROL (4 Hours - 1950)		D3 RADIO CONTROL	(22 Hours- 1957)	D3 RADIO CONTROL (3 Hours - 1960)		RADAR 1A CONTROL	(TC Hours - 1999)	

Table I-2 (Cont'd)

#### CENTER

## MESSAGE CLASSIFICATION TOTALS

R/POM	MOM	A.							Volu	ne II	
1 1 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	SEED SEED		26.5 23.5	26.5	25.0	26.2	29.3 35.4	30.9	33.5 10.8 37.8	34.5	
	FESSAGES TA TARO		32.9 32.4	32.8	16.0 38.5 10.0	39.8	29.9 31.5	30.3	28.8 26.8 33.3	28.9	
CLASS	FESS	707	10.6 14.1	40.7	35.0 24.6 40.0	31.0	193.1	38.8	37.7 32.4 28.9	36.05 26.05	
TER	(%)	NEWS	37.8 30.0	37.6	38.0 51.4 29.h	39.2	37.5 50.7	1,0.8	17.6 70.3 10.9	19.5	
CLASSIFICATION OF CONTROLLER	TESSAGES	2	32°4 30°0	32.3	22 22 23 24 24 25 25 25 25 25 25 25 25 25 25 25 25 25	37.7	27.4 18.8	25.3	20°4 8 36°1	20.2	
CIAS: OF C	NES.	DATA	29.8 10.01	30.0	22.5 17.1 1.8	23.0	35.1 30.4	33.9	22.7	30 <b>°</b> 7	
TION	(કેઇ	NEWS	8.44 8.64	13.9	10.5	11.8	18.8	18,3	17.9 8.8 34.8	18.2	
CLASSIFICATION OF PILOT	MESSAGFS		33°4 35°7	33.h	1,3.2	1,2.0	33.1	36.7	38.0 47.1 30.4	38 <b>•</b> ¼	
CLASS	MES	DATA	52°8 50°0	52.7	25.00 20.00	16.2	1,8,1 33,1 36,6	15.0	11-14-15 34-8-16	43.4	
	SAGES	TOTAL	1677 32.	171	£03 203 204	503	368 127	1,95	597 71 115	273	
	OF MESSAGES	CNTIR	889	00	SW2	265	203 69	277	EK 88	372	
	NUMBER	PILOT	788 111	800	190 30 18	238	160	218	28 4 28 28 4 28	34.1	
	AVTATION	CATEGORY	Air Carrier Military	11/85/10	Air Carrier Military Gen Aviation	OVER ALI.	Air Carrier Military	OVERALI.	Air Carrier Military Gen Avlation	OVERAIL	
	ON MOTHER	SAMPLE SIZE	RADAR 1B CONTROL	(()(T = STOULOT)	RADAR 1B CONTROL (2 Hours - 1960)		FADAR 2A CONTROL	(()) c tron or	FADAR 2B CONTROL (8 Hours - 1959)		

100 62.53 80 80.53 80.53 80.53 80.53 80.53 80.53 80.53 80.53 80.53 80.53

37.5

118

80.0 57.5

32.01

မြို့

88.89 6.4.80

66.7 29.7

112

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1 7 A

25gu 2

Air Carrier Military Gen Avlation

POSITION B (24 Hours - 1959)

POSITION C (18 Hours - 1959)

57.2

78.1

June 1960 Page 9

60.5

30.9

58,3

31.8

9.9

62.6

30.1

ਰ੍ਹ

151

163

OVERALL

Table I-3

MESSAGE CLASSIFICATION TOTALS

STATION

(Ground-Air Communications)

	NUMBER	NUMBER OF MESSAGES	SAGES	CLASS OF MESS	CLASSIFICATION OF PILOT MESSAGES(%)	NO	OF O	CLESSIFICATION OF CONTUNICATOR MESSAGES (%)	SPIOR (%)	MES
AVIATION	DITIM	PTIOT CMCTR TOTAL	TOCAL	DATA	DENT	NEWS	DATA	INFO	NEWS	DATA
Air Carrier Military	172 381	16h 380	3%	7, 9,0 8,0	% K. 6	57.6 58.5	ייאני פיאני	15.2 28.4	28.27	6,77
Gen Aviation	3 3	27	לים ניינ	-1 20 80	8-1 37-0 8-1 33-9		: 6. 17	24.3	60.8	11.el
Overala. Air Carrier	22	286	1961	13.2	34.2		19.2	30.8 19.6	50.0	15.6
Military Gen Aviation	88	선	îã	ν. 0.	30.0	65.0	16.7	26.2	57.1	<b>&amp;</b>
OVERALL	166	119	285	8.4		32.5 59.0	21.0	21.0 24.4	24.0	73.7
						-				-

POSITION D (20 Hours - 1959)

POSITION AND SAMPLE SIZE

57.75 59.30 50.20

NEWS

INFO

CLASSIFICATION OF TOTAL MESSAGES (%)

59.3

29.5

484 60.00

32.8 27.7 28.4

1

1

Table I-4

TWO-HOUR DIN TOTALS FOR GROUND CONTROL POSITION

	1	7				Ť									$\mathbf{I}$			~ =		1	00 Y	· o	8	25	
	- 1	CMTN	র	፠ጜ	M M	2	77	፠፠	87	저	5	417	ጸጸ	•	2	ñ	18	N (N	ີ່ດີ		ያ ያ	im	M	2	
	GES (%)	E S	82	ሌያ ያ	23	R	65	1881 1881	芫	3	(	3 I	ፈጸ	. ,	19	74	S.S.	また	7	3	89	2 2 2	<b>%</b>	63	
OF T	MESSAGES	DATA	17	ដ្ឋ	w	12	ç	၂ဝထ	-	6	ì	요 !	82	<b>1</b>	3	ì	22	ส^	. (°	7	ដ់ :	35	ាន	ដ	
		NEWS	0	7	25.	12	Ç	388	×	23		۱ ۵	OΨ	`	8	•	38	ኤ ሌ	1	15	ជ	19	<i>;</i>	91	
CLASSIFICATION OF CONTROLLER	MESSAGES (4)	noi	ဋ	308	3,0	81	1	285	ਰੋਨੀ	89		& I	8	<b>a</b>	88		88	8 %	76	28	## 82	<b>%</b> 7	ጸድ	1.	
STID	MESS	DATA	ľ	~~~ ∨∞	<b>11</b> 0		Ĺ	<b>800</b>	^;i	« ——		พ	٥	크 	9		<b>∞</b> ο	·•·	٦ 	7	,at	21	121	·	
NOI	_	NEWS	) :	288	88	ኢ		ሥይ፣	3 Z	ų		38	29	ş	112		₹೪	ረጋ ያ	8	8	28	<b>%</b> :	<i>ጜ</i>		2
CLASSIFICATION	OF PLIME	TNFO	٠	<b>88</b> 8	# C	%		ፚፚ	경뉴	1 1	3	8	1 17	8	ç		፠ະ	₹ <b>%</b> ?	Ω	38	177	2	፠፠		3
CIAS	0	TATA TNFO		8H	<b>3</b> W	Ď	7	చిం	<b>⊸</b> °	J (	2/	8	1 17	77	80	3	53	38°	77	23	8	ì r	<u>ሕ</u> -	-	8
		AGES	10141	97 97 189	325	1		<u> </u>	181	5 9	77.8	191	IA	8	000	707	292	222	2	467	78.	3 2	, 8 , 5	101	司
		OF MESSAGES	CNITH	198 94	<u>የ</u> ያዩ	<u> </u>	177	272	11.	g ·	152	Ħ	l r	32,	1	175	191	₹ 3	37	3,40	:	7 5 7 5 7 5 7 5 7 5 7 5 7 5 7 5 7 5 7 5	133	8	30
		ابہ	PILOT	2 <del>1</del> 12	<b>1</b> 27	₹ ¦	317	ᅾ	29	<b>T</b>	261	7.7	:14	13.0	•	126	101	83	<b>R</b>	202	23	1=	13:	∄	208
		AVIATION	CATEGORY	Air Carrier	Gen Aviation	serror venteres	TOTAIS	Air Carrier	Gen Aviation	Grnd Vehicles	TOTAIS	# 4 C 4	Military	Gen Aviation	DESCRIPTION DILID	TOTALS	Air Carrier	Military Con Arfetion	Grnd Vehicles	1	TOTALS	Air Carrier	tion	Grnd Vehicles	TOTALS
	<del></del>		DATE AND TIME	15 May 1959	(0800-1000)			20 May 1959	(10091-00171)				23 May 1959 (0000-0200)				טאַטר אַרָּיִי	(11,00-1600)		-		23 Kay 1959	(1600-1500)		

Table I-h (Cont'd)

TWO-HOUR DIN TOTALS FOR GROUND CONTROL POSITION

TON	$\overline{}$	INEWO	39.2	ဓ္က	e 5	25	3885	 }	ಜ							
CLASSIFICATION OF TOTAL	MESSAGES (%	2	<b>63</b>	, 6 <u>,</u>	52	59	884 8	3	છુ					-		
CLAS	MES	DATA	8 2	임	70	16	ည်ထ ညီ <i>ဂ</i>		큐						-	
CER	9	NEWS	12.5	] A	7.	15	1881	-ī	7							
CLASSIFICATION OF CONTROLLER	MESSAGES (%	LINEO	827	<u> </u>	1,6	78	132	<u>e</u>	79	•						
CLAS	MES	DATA	<b>'</b> 0 m	<b>ာ</b> င	2	~	ω. <i>γο</i> .ν	٥	80							
NOI	<b>⊗</b>	NEWS	43	<b>1</b> 2	<u></u>	<u>.</u>	ର ଝୁଫ୍ଟ	92	37		<del></del>			 		
CLASSIFICATION OF PILOT	MESSAGES (	LINFO	33	አ የ	<b>∤</b> ‡	83	182£	2	37							
CLAS	MESS.	DATA	46	2 1		چ 	%ଖର	9	ર્જ			· · · · · ·		 		
	SSAGES	TOTAL	ĺ	85	120	805	419 47 175	1/1	812						,	
	MINNERS OF MESSAGES	CNILR	210	8	10 10 10 10 10 10 10 10 10 10 10 10 10	001	252 211	200	501							
	MINAR	PILOT	138	81	2%	3 %	19.3	છ	377		•					
	MOTHATTA	CATEGORY	Air Carrier	Military	Gen Aviation		Air Carrier Military Gen Aviation	Grnd Vehicles	TOTALS					-		
		name and mTME	27 Feb 1960	(0091-00+1)			27 Feb 1960 (1600-1800)					Pod-9-1-1-1-1	······································			

Table I-5

TWO-HOUR DIN TOTAIS FOR LOCAL CONTROL POSITION

ATION AL (%)	NEWS	สสฅ	24	ដ្ឋ	25	₹,7.0	19	18 23 57 57 57 57 57 57 57 57 57 57 57 57 57	20	250 250 250	20
CLASSIFICATION OF TOTAL MESSAGES (%)	ENER S	공공대	8	क्ष क्ष	12	285	19	79 67	63	<b>3</b> 98	62
CLAS	DATA	ជអង	20	848	2	8 75°	18	ឧក្ខ	17	822 822	17
EN ER	NEWS	% % %	20	2648	21	8 4°	77	អ្ន	17	8778	139
CLASSIFICATION OF CONTROLLER WESSACES (4)	0.1	23 60 60	69	322	65	7,827	92	2 2 2 8	20	5% <b>t</b>	77
CLASSIFIC OF CONTRO	DATA	ដូនដ	П	H & H	77	307	7	H & H	13	18 €	10
TION	NEWS	<b>ដ</b> អ្ន	30	222	R	220	80	ឌដន	25	488	23
	TA INFO	なのな	ন	5 % A	33	3335	99	다 크	49	ぴぱぱ	91
OF	DATA	ጽ <sub>ሞ</sub> ሕ	×	ይቘቜ	34	ద్దర్తం	33	888	56	844	33
	TOTAL	697 59 2144	1000	<u>ਲ</u> ਵਾਨ ਨ	766	322 13	339	528 136 164	828	270 98 136	504
	CIVILIR TOT	551 5251	64,0	26 26 198	61.1	190 8 3	201	361 112	570	167 64 87	318
	PILOT	25h 17 17 89	360	237 8 111	356	132 122 1	138	167 39 52	258	103 154 159	186
	AVIATION	Air Carrier Military Gen Aviation	TOTALS	Air Carrier Military Gen Aviation	TOTALS	Air Carrier Military Gen Aviation	TOTALS	Air Carrier Military Gen Aviation	TOTALS	Air Carrier Military Gen Aviation	TOTALS
	שארויוי מאלו	21 May 1959 (11,00-1500)		21 May 1959 (1600-1800)		23 May 1959 (0000-0200)		23 May 1959 (11400-1600)	<b>**</b>	23 May 1959 (1600-1800)	

Table I-5 (Cont'd)

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TWO-HOUR DIN TOTALS FOR LOCAL CONTROL POSITION

'AIR, PO	MORA	ns.		`	 		 	Volum	II	Page	13	<b>_</b>
ron 8)	NEVIS	3338	ଷ								- 1	
CIASSIFICATION OF TOTAL MESSAGES (%)	05.NI	79 79 79	63									
CLASS OF MESS	DATA	95 133 164	71	•								
TION LER	NEGAS	888	72									
CLASSIFICATION OF CONTROLLER MESSAGES (%)	ONI	65 67 60	79									
CLAS OF C	DATA	भ्र <sup>®</sup> न	15									
Z.	EWS.	18 18 18	17		- <del></del>	-	 					
CLASSIFICATION OF PILOT	INFO	ድአሜ	9									
CLAS	DATA	25. 12. 18.	23								<b></b>	
Ç	NUMBER OF MESSAGES PILOT CKTIR TOTAL	222	1645									
	CATIR	655 78 383	9711									
	NUNEER	310 37 182	529									
	AVIATION	Air Carrier Military Gen Aviation	TOTAIS									
	באברה הונו בהנה	27 Feb. 1960 (11,00-1500)	<b>₽</b>		 na, and a design	qr- <del>vä</del> kk-						

Table I-6

物語は何の意見には意味があればないにのはあしいです。 ととし かっこい のきゅうご コフラテかる・ト

TWO-HOUR DIN TOTALS FOR APPROACH CONTROL POSITION (ANG)

					OT AGO	OT ASSTRTCAMTON	NOT	CLASS	CTASSTETCATION	E S	CIASS	CLASSIFICATION	NOI
	AP 4 2 2 2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4		SECASSIM TO CHANGE	50.50	OF OF	OF PILOT	£	OF CONTRO	OF CONTROLLER MESSAGES (%)	~	OF	OF TOTAL	(g)
DATE AND TIME	AVIATION	PILOT	CNTLR	TOTAL	DATA	1 1	NEWS	DATA	t ( 1	NEWS	DATA	INFO	NEWS
20 May 1959 (1400-1600)	Air Carrier Military	8 गरा	547 14	<b>ሺ</b> 8	38.0	41 38	27.0	~ 덚	56 57	37	26 27	22	₹£2 :
	Gen Aviation	<b>¦</b>	1	1	1	!	;	•	¦ '	; ,	l \	1 1	
	TOTALS	452	561	1013	20	귶	6	7	22	%	92	22	₹.
20 May 1959 (1600-1800)	Air Carrier Military Gen Aviation	146 19 2	213 45 3	359 64 5	10 E Z	ဝည္သဏ္က	800	27 27 67	148 147 0	33.73	8248	\$200	858
	TOTALS	167	261	428	53	94	~	12	1,1	92	37	44	87
23 May 1959 (0000-0200)	Air Carrier Military Gen Aviation	64t 71	1 35	1 2 1 1 2 1 1 2 1 1 2 1 1 1 1 1 1 1 1 1	59 8	30	ro	77 27 1	1 633	, 88 <del>1</del>	37	52 -	118
	TOTALS	799	220	386	62	31	7	16	54	e e	36	#	ଷ
23 May 1959 (1400-1600)	Air Carrier Military Gen Aviation	260 23 1	279 35 2	539 58 3	47. 26 100	41 39 0	350	18°	57 51 100	8,60	ଷ ଅ ଅ	19 14 64	8 H o
	TOTALS	284	316	, 009	947	04	77	77	57	E E	88	617	23
23 May 1959 (1600-1800)	Air Carrier Military Gen Aviation	32 42 132	150 69 6	282 100 7	18 62	40 35 0	७५०	17 19 17	51 35 17	31 46 67	₹ <b>% &amp;</b>	15. 15. 15. 15. 15. 15. 15. 15. 15. 15.	37.75
	TOTALS	797	225	389	53	39	8	1.8	45	37	33	43	25

Table I-6 (Cont'd)

TWO-HOUR DIN TOTALS FOR APPROACH CONTROL POSTION (AMC)

TION L (%)	NEWS	ਰੋ ! !	な	
CLASSIFICATION OF TOTAL MESSAGES (%)	- 1	311	걸	
CILASS OF MESS	DATA	81 1	35	
N	NEWS	g : :	30	
CLASSIFICATION OF CONTROLLER MESSAGES (4)	INFO	1 : 20	20	
CLASSI OF COI	DATA	ส : :	ৱ	
TION (4)	NEWS	16	91	
CLASSIFICATION OF PILOT MESSACES (4)	7 }	ਲ।। ਸ਼	ಜ	
CIASS	DATA	53	53	
	TOTAL	954	456	
	NUMBER OF MESSAGES	261 0	192	·
	PILOT	195	195	
	CATEGORY	Air Carrier Military Gen Aviation	TOTALS	
	DATE AND TIME	24 May 1959 (1400-1600)		

Table I-7

TWO-HOUR TOTALS FOR APPROACH CONTROL POSITION (RADAR)

·								Volume II	Page	17
N.	NEWS	22 SB FF	เว	워크	37	ជាន	2			
CLASSIFICATION OF TOTAL MESSAGES (%)	DATA INFO	33.33	37	413	디	<b>224</b>	97			
OLASS: OF POSS	DATA	12%5	1,2	33 83	143	おけば	712			
rion ER	NEWS	235	56	81 12	19	2688	큐		<del></del>	
CLASSIFICATION OF CONTROLLER	DATA INFO	47 47 41	77	212	52	£513	23			
P. P.	DATA	7288	35	218	53	청작용	27			
LION	NEAS	^ដដ	12	11 71	12	ይሎጃ	10			
CLASSIFICATION OF PILOT	TA INFO	288	33	%।%	25	£502	28			
AIO	DATA	\$84	58	79 79	62	27.03	62			<u></u>
	OF MESSAGES CNTIR TOTAL	199 101 390	069	1200	1298	561 47 87	695			
	CNTLR	119 65 234	418	7.17	768	ii ii ii ii ii	388			
	PILOT	8%స్ట	272	163	530	250 20 37	307		•	
	AVIATION	Air Carrier Military Gen Avlation	TOTALS	Air Carrier Military Gen Aviation	TOTALS	Air Carrier Military Gen Avlation	TOTALS	•		
	DETE AND TIME	12 March 1960 (1200-1300)		11, March 1960 (11,00-1600)		1), March 1960 (1600-1800)				

Table I-8

TWO-HOUR DIN TOTALS FOR DEPARTURE CONTROL POSITION (ANC.)

<u> </u>	Im	1				Т				. <u></u> , <b></b>				T				Ţ				Ì
TION (%)	NEWS		ଥ	1	1	8	ដ	122	귀	ደጸአ	8	なれ	I	27	1.8	i	i	13	S	•	1	8I
CLASSIFICATION OF TOTAL	A CENT		겂	I	1 .	겂	克	目	元	222	77	ዩቭ	l	요	94	ł	i	29	<sub>4</sub> 3	i	1	<u> </u>
CIAS O S	TATA		88	i	l	62	ध	IX	77	883	ন্ত	E E	į	ຄ	Ж	ı	ŀ	×	35	ŀ	ŀ	35
N &	METAC		8	l	1	33	77.	음	25	888	55	50	1	જ	Ж	1	1	Ж	35	ı	1	35
CLASSIFICATION OF CONTROLLER	MESSAGES (%)	200	귟	i	;	귟	22	18	52	2528	O <del>1</del>	38	1	97	귟	ŧ	i	꺕	52	1	i	52
OF CO	MESSA	MIN	œ	1	1	8	র্ব	10	23	9 8 0	10	<b>40</b>	1	77	6	1	1	6	13	ł	ł	13
MOI	(%)	NEWS	m	1	1	3		10	Н	000	9	<i>4</i> 0	1	7	Ţ	ŀ	1	H	8	i	1	8
بعاكما	- 1	INFO	61	1	t I	67	37	(1X)	37	ያ ያ	55	귟	!	귟	38	. 1	!	38	33	i	!	33
CLAS	MES	DATA	877	. 1	ł	84	69	115	29	28B	07	걸유	1	디	61	! !	ļ	79	55	. 1	ł	82
	AGES	TOTAL	363	1	1	363	75,	710	, 991	822	336	376	7	389	107	<u> </u>	ł	197	308	, 1	ł	308
	NUMBER OF MESSAGES	CINTLER	02.1	2 I	I	170	Ş	7   ح	` చే	159 12 12	175	185	۱ د	191	8	2 1	ł	%	155	}		155
	NUMBER	PILOT	נטנ	۲ <u>۲</u>	1	193	0.0	٦   ٥	· &	掃다°	, 161	191	- 1	198	5	<b>į</b> !	ì	5	162	3		153
	AVIATION	CATEGORY	20 Part of 1 4	MIT CALTIEL	Gen Aviation	TOWATS.	The state of the s	Air Carrier Military	monata	Air Carrier Military	HOMATS	Air Carrier	Military Gen Aviation	moma1.s	CONT.	Milter Milter	Gen Aviation	O T A E C E	TOTAL	Air Carrier	Gen Aviation	TOTALS
		DATE AND TIME	1	20 May 1959	(1600-1500)			23 May 1959 (0000-0200)		23 May 1959 (1400-1600)		23 May 1959	(0081-0091)		1	24 May 1959	(1700T=00TT)			24 May 1959	(mor-noor)	

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Table I-9

THO-HOUR DIN TOTALS FOR DEPARTURE CONTROL POSITION (RADAR)

NC.		NEWS	ದ <b>I</b>	25	21	40 H	ង	
CLASSIFICATION	OF TOTAL MESSAGES (2)	TIMEO	* 1	크	8	<del>አ</del> ፎፎ	33	
CLASSI	OF MESSAC	DATA	<b>1</b>	ᆔ	1,3	8673	귟	
NOI	E C	NEAS	25	1 8 <sub>2</sub>	25	ឯ០៦	ដ	
CLASSIFICATION	OF CONTROLLER	OENI OENI	다	13	듸	55 25 25	53	
CIAS	O PO C	DATA	굕	1 %	줐	### ###	<u>ਜੋ</u>	
LION	6.5	NEW	ដ	1 2	15	ន្ត°គ	ន្ទ	
CLASSIFICATION	OF PILOT	1050	27	13	8	គ°គ	ភ	
CIA		DATA	58	37	<b>%</b>	88t	92	
		TOTAL	379	13	1,23	816 84 84	3%	
.	1	NUMBER OF MESSAGES PILOT CNTIR TOTA	220	1 %	. K	187	112	
		NUMBER	159	្រុ	17.8	161	1.85	
		AVIATION	At Campber	Military	MOWATS.	Air Carrier Military	TOTAIS	
		Gorten Cries Conse	OS TO TOO	(0091-0071)		23 Feb. 1960 (1600-1800)		

Table I-10

TWO-HOUR DIN TOTAIS FOR D2 RADIO CONTROL POSITION

MOII	(S)	NEWS		ሄሥ	37	32	28		28	881		22	488	8	6	288	,	8
CLASSIFICATION	OF TOTAL MESSAGES (	INFO		£83	37	대	4		듸	乌쬤		39	22%	, ,	×	8 Q C	,	32
CLAS		DATA		섞冶	%	27	8		20	88		38	# S &	<b>3</b>	23	488	2	8
No	æ	NEWS		8.3	17	15	88		38	38		%	ቭሪሪዩ	î .	77	చేస్తు	·····	%
CLASSIFICATION	OF CONTROLLER			ዼ፠	≀ದ	되	65		22	£3	ł	×	ಜಿಲ್ಲ	₫ ;	35	ដន	<b>)</b>	20
CLASS	OF CONTRO	DATA		ឧ	፠	17	Ħ		Ħ	28 12	1	28	809	ત્ર	23	222	7	32
LON	3	NEWS		22	421	20	17		17	ਨਮੈ	1	9	၅၀	9	13	٥۾٠	<b>5</b>	F
CLASSIFICATION	OF PILOT	MESSAGES TARO		ନ୍ଦ	3%	07	8		32	4%	ŀ	113	<b>∄</b> %:	1	EJ	927	0	9
CLASS	Q	MES		147	23	07	닧		51	ά&	I	옶	113	\$	#	₹ <i>%</i>	100	119
		AGES	7777	107	27.2	165	399		399	387	0	126	213	es Es	256	216	78 88	301
		NUMBER OF MESSAGES	בוודוש	요;	ቋድ	83	505		509	209	0	228	115	Ά	135	ដ្ឋដ	ដ	165
		NUMBER	FILOI	52	17	2	190		190	178 20	0	198	86,9	77	121	8%	ž;	136
		AVIATION	CATEGORY	Air Carrier	Military Gen Aviation	OT A TO	Air Carrier	Military Gen Aviation	TOTALS	Air Carrier Miltary	Gen Aviation	TOTALS	Air Carrier	Gen Aviation	TOTAIS	Air Carrier Military	Gen Aviation	TOTALS
			DATE AND TIME	15 May 1959	(0800-1000)		20 May 1050	(0091-0071)		23 May 1959	(mort-mtr)		24 Kay 1959			24 May 1959		

Table I-10 (Cont'd)

TWO-HOUR DIN TOTAIS FOR D2 RADIO CONTROL POSITION

_						<del></del>	<del></del>			···-	
Noi	<b>%</b>	NEWS	ያ ፠፠	R	दक्ष <b>।</b>	8	35 55	帮	ત્રજ :	켮	
CLASSIFICATION	OF TOTAL	DINI	ጽжዌ	38	크귀ㅣ	88	39	38	100 m	7	
CLASS	TO TO	DATA	ጸជጸ	EK.	% R I	37	88 8 88 8	82	ተ፠ <b>!</b>	ŧ	
LION	HE S	NEWS .	225 225 225	113	큐 <b>더</b>	37	ಜಹಚಿ	25	33	36	·
CLASSIFICATION	OF CONTROLLER	MESSAGES (%)	388	33	37	8	38 18 18	14	35	36	
CIAS	S S	DATA	26 1.9 0	24	%01	28	ωω !	7	1 8 8	28	
TON		NEVIS	72 H	17	18	8	38.5	17	ដន :	13	
CTASSTETCAPTON	OF PILOT	TA INFO N	322	1,5	F 18	E	୍ଟ୍ର <b>ଅ</b> ନ୍ତ	36	10,848	24	
CTASS	0	DATA	유토은	נין	84 84	49	ራස%	47	53.5	0†	_
		TOTAL	262 52 10	324	352 22 0	374	342 65 20	124	836 39 1	876	
		NUMBER OF MESSAGES	121 127 14	182	84 tl o	199	159 33	201	425 20 	544	
		NUMBER	म् रहे	11/2	491	175	183 <b>32</b> 11	226	114 61	431	
		AVIATION	Air Carrier Military Gen Avlation	mon' AT.S.	Air Carrier Military Gen Aviation	TOTAIS	Air Carrier Military Gen Aviation	TOTALS	Air Carrier Military Gen Avlation	TOTALS	
			25 Mry 1959 (1400-1600)		25 May 1959 (1600-1830)		8 March 1960 (1400-1600)		9 March 1960 (1400-1600)		

Table I-11

TWO-HOUR DIN TOTAIS FOR D3 RADIO CONTROL POSITION

		DATE AND TIME	12 May 1929	(mot-mor)		20 May 1959	(1400-1600)		20 May 1959 (1600-1800)		21 May 1959 (1400-1600)		21 May 1959 (1600-1800)	
	AVIATION	CHIEGORI	ALL CALLIEL	Gen Aviation	TOTALS	Air Carrier	Military Gen Aviation	TOTALS	Air Carrier Miltary Gen Aviation	TOTALS	Air Carrier Miltary Gen Aviation	TOTALS	Air Carrier Military Gen Aviation	TOTALS
	NUMBER	FALSO.	13	0	61	105		105	디	13	رن 8	69	11	8
	NUMBER OF MESSALES	2	,Φ	0	బ	125		ध्य	13	75	10	89	<b>0</b> √4	13
	ALEKS MOTIVAT.	0	33,	0	7,2	230		230	3	28	140 18	158	9 iv	21
CLASS	DATA	100	14	;	58	84		87	100	54	38	49	57	29
CLASSIFICATION OF PILOT	7	1	1.7	;	37	29		62	1 24	38	#£	14	ឌ្ន !	38
TION	NEWS	:		:	5	₹	<del></del>	챵	ļ∞	8	50	임	1 1	
CLASSIFICONTRO OF CONTRO MESSAGES	DATA	8	17	!	11	91		91	33.1	27	100	19	2083	38
CLASSIFICATION OF CONTROLLER MESSAGES (4)		09	සු	;	35	94		94	18	8	88 O.	38	<b>#</b> !	80
R ON	NEWS	8	29	:	84	38		38	100 146	53	49	43	50.	54
CLASS OF MESS	DATA	56	ဓ္က	!	36	30		30	077	39	<b>₹</b> 8	32	<b>∄</b> 9	84
CLASSIFICATION OF TOTAL MESSAGES (4)	ONI	33	30	i	36	38		8	l &	53	<b>48</b>	39	81	13
ITION (%)	NEWS	ដូរ		<u> </u>	8	rg E	<del></del>	31	<u>න</u> ස	32	26.25	88	전경	33

Table I-11 (Cont'd)

TWO-HOUR DIN TOTAIS FOR D3 RADIO CONTROL POSITION

Air Cerrier   Pilor   Pilor		MATCHER	MINER	OF MESSACES	ACES	CLAS	CLASSIFICATION OF PILOT MESSAGES (%)	TION (%)	CLASSIFIC OF CONTRO MESSAGES	CLASSIFICATION OF CONTROLLER MESSAGES (%)	N W	CIAS		rion (%)
Air Carrier         20         17         37         50         30         20         12         59         29         29         29         24         28         64         24           Gen Arlation         49         42         91         43         35         22         10         40         50         27           Air Carrier         21         22         43         71         29          18         45         36         44           Miltery         22         22         43         71         29          18         45         36         44           Miltery         20         27         74         149         33         43         24         31         41         28         32           Miltery         20         77         74         149         33         43         24         31         41         28         32           Miltery         20         27         140         33         43         24         31         41         28         32           Miltery         27         110         40         36         25         23         40	DATE AND TIME	CATEGORY	PILOT	CNTLR	TOTAL	DATA	INFO	NEWS	DATA	LINEO	NEWS	DATA	S. I	SENS
Air Carrier         49         42         91         43         35         22         10         40         50         27           Military Gen Aviation         21         22         43         71         29          18         45         36         44           Conais         21         22         43         71         29          18         45         36         44           Air Carrier         75         74         149         33         43         24         31         41         28         32           Military         Gen Aviation         75         74         149         33         43         24         31         41         28         32           Military         Gen Aviation         75         74         149         36         25         23         40         37         31           Air Carrier         35         57         110         40         36         25         23         40         37         31           Air Carrier         31         45         45         45         45         45         46         44         50         22	22 May 1959 (1600-1800)	Air Cerrier Militery Gen Aviation	20	17	37	38,0	တ္တမ္လ	જ ત્રં	ដួ∞	889	8:3	25 24 25	£5 33 43	24 43
Air Cerrier 21 22 43 71 29 18 45 36 44 Military Gen Aviation  Air Cerrier 75 74 149 33 43 24 31 41 28 32  Military Gen Aviation  Air Cerrier 53 57 110 40 36 25 23 40 37 31  Military Gen Aviation  TOTALS  Air Cerrier 61 1 16 27 45 45 9 6 44 50 22  Military Gen Aviation  TOTALS  Air Cerrier 11 16 27 45 45 9 6 44 50 22  Military Gen Aviation  Air Cerrier 11 16 27 45 45 9 6 44 50 22  Military Gen Aviation 40 93 45 27 27 37 31 41 41 50 22  Military Gen Aviation 75 7 110 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7		TOTALS	64	775	91	43	35	8	20	04	50	27	37	36
TOTALS   21   22   43   71   29     18   45   36   44     Alt Carrier   75   74   149   33   43   24   31   41   28   32     Military Gen Aviation   75   74   149   33   43   24   31   41   28   32     Alt Carrier   53   57   110   40   36   25   23   40   37   31     Military Gen Aviation   40   36   25   23   40   37   31     MILITARY Gen Aviation   40   36   25   23   40   37   31     MILITARY Gen Aviation   41   16   27   45   45   9   6   44   50   22     MILITARY Gen Aviation   44   45   45   9   6   44   50   22     MILITARY Gen Aviation   44   49   93   45   27   27   37   27   41     MINITARY Gen Aviation   44   49   93   45   27   27   41     MINITARY Gen Aviation   44   49   93   45   27   27   41     MINITARY Gen Aviation   44   49   93   45   27   27   27   41     MINITARY Gen Aviation   44   49   93   45   27   27   27   41     MINITARY Gen Aviation   44   49   93   45   27   27   27   41     MINITARY Gen Aviation   44   49   93   45   27   27   27   41     MINITARY Gen Aviation   44   49   93   45   27   27   27   41     MINITARY Gen Aviation   44   49   93   45   27   27   27   27   41     MINITARY Gen Aviation   44   45   27   27   27   27   41     MINITARY Gen Aviation   45   27   27   27   41     MINITARY Gen Aviation   45   27   27   27   27   41     MINITARY Gen Aviation   45   27   27   27   41     MINITARY Gen Aviation   45   27   27   27   27   41     MINITARY Gen Aviation   45   27   27   27   27   27   27   27     MINITARY Gen Aviation   45   27   27   27   27   27   27   27   2	23 May 1959 (0000-0200)	Air Carrier Military Gen Aviation	ಸ	83	£4	77	59	1	18	54	36	71	37	19
Air Carrier         75         74         149         33         43         24         31         41         28         32           Military Gen Aviation         75         74         149         33         43         24         31         41         28         32           Air Carrier         53         57         110         40         36         25         23         40         37         31           Air Carrier         11         16         27         110         40         36         25         23         40         37         31           Military Gen Aviation         41         26         25         23         40         37         31           Military Gen Aviation         11         16         27         45         45         9         6         44         50         22           Military Gen Aviation         11         16         27         45         45         9         6         44         50         22           Minute         49         93         45         27         27         27         41           Montrier         44         57         27         27 <t< td=""><td></td><td>TOTALS</td><td>ಸ</td><td>83</td><td>143</td><td>77</td><td>53</td><td>;</td><td>81</td><td>45</td><td>36</td><td><b>1</b></td><td>31</td><td>61</td></t<>		TOTALS	ಸ	83	143	77	53	;	81	45	36	<b>1</b>	31	61
Air Carrier 53 57 110 40 36 25 23 40 37 31  Ail Sarrier 11 16 27 45 45 9 6 44 50 22  TOTALS 11 16 27 45 45 9 6 44 50 22  Air Carrier 44 49 93 45 27 27 27 27 18 45 45 27 37 37 27 41	23 May 1959 (1400-1600)	Air Carrier Military Gen Aviation	75	<b>7</b> L	149	33	143	たて	ᄄ	<b>1</b> 41	88	<b>&amp;</b>	գ	
Air Carrier         53         57         110         40         36         25         23         40         37         31           Military Gen Aviation         53         57         110         40         36         25         23         40         37         31           Air Carrier         11         16         27         45         45         9         6         44         50         22           Military Gen Aviation         11         16         27         45         45         9         6         44         50         22           Air Carrier         44         49         93         45         27         37         37         27         41           Military Gen Aviation         11         16         27         45         9         6         44         50         22           Air Carrier         44         49         93         45         27         27         37         27         41           MANATOR         44         45         27         27         27         41         41		TOPALS	75	<b>77</b> L	149	33	1+3	큓	31	7	82	었	72	92
Air Carrier         11         16         27         45         45         45         45         45         44         50         22           Air Carrier         11         16         27         45         45         45         6         44         50         22           Gen Aviation         11         16         27         45         45         9         6         44         50         22           TOTALS         11         16         27         45         27         37         37         27         41           Air Carrier         44         49         93         45         27         27         37         27         41	24 May 1959 (1400-1600)	Air Carrier Military Gen Aviation	53	57	110	04	36	25	ଷ	04	37	<del>к</del>	38	30
Air Carrier         11         16         27         45         45         9         6         44         50         22           Military Gen Aviation         11         16         27         45         45         9         6         44         50         22           TOTAIS         11         16         27         45         45         27         27         37         27         41           Air Carrier         44         49         93         45         27         27         37         27         41           moverts         14         49         93         45         27         27         37         27         41		TOTALS	53	57	011	2	36	25	23	017	37	31	28	%
11 16 27 45 9 6 44 50 22  rier 44 49 93 45 27 27 37 37 27 41  14 49 93 45 27 27 27 37 27 41	24 May 1959 (1600-1800)	Air Carrier Military Gen Aviation	#	97	S. LZ	542	54	0,	٠ .	<del>1</del>	50	8	7	33
Air Cerrier 44 49 93 45 27 27 37 37 27 41		TOTATS.	디	76	27	145	4.5	6	9	#	20	22	#	33
manage 11 14 149 93 145 27 27 37 37 27 141	25 May 1959	Air Carrier	7	64	93	45	ĹΖ	27	37	37	لكا	14	×	12
	(1400-1600)	TOTALS	41	64	જ	45	27	27	37	37	27	14	R R	22

Table I-11 (Cont'd)

# TAD-HOUR DIN TOTALS FOR D3 RADIO CONTROL POSITION

									 		VOTO	ine .	1.1	Page	24		
TION (%)	NEWS		28	g,	8	30	ç	3									
(TASSIFICATION OF TOTAL MESSAGES (%)	DATA INFO	9	3 T	છ	3	14	3	4		•				•			
CILASS OF MESS	DATA		333	20	큤	8	:	8									
ATION LIER (4)	NEWS		සු ස	11	62	143	•	<del>ရ</del> က		-							Ţ. ,
CLASSIFICATION OF CONTROLLER WESSAGES (4)	CENT CENT		ጜጜ	18	25	<b>‡</b>	:	∄									
A SO	TAMA	4	98	1	15	ET.		13	·								
NOI	2 / Carro	MEMO	Ŋ«	3 %	Ħ	18		8									1
CLASSIFICATION OF PILOT	MESSAGES (%)	O JAN	3 %	<b>ነ</b> ¦	38	82		8									
CLASS	MESS	DATA	<b>3</b> %	67	15	3		4									
	AGES	TOTAL	199	, , 4	252	233		233				,					
	NUMBER OF MESSAGES	CIVILIA	क्ष	∯.പ	120	211		211									
	NUMBER	PIIOT	701	ဂ္ဂ က	130	न्द्र		द्ध									
	AVIATION	CATEGORY	Air Carrier	Military Gen Aviation	STAROR	Air Carrier	Military Gen Aviation	TOTALS								-	
		DATE AND TIME	7 March 1960	(1440-1540)		10 March 1960	(1340-1540)										

Table I-12

TWO-HOUR DIN TOTAIS FOR RADAR 1A CONTROL POSITION

	T.,	T			T-			T			$\top$				T			7
Fron Fr (%)	NEWS		8	8	३	&ግ		18	77		줘	۶۶ <b>۱</b>	1		위	17	!	Fi
CIASSIFICATION OF TOTAL MESSAGES (%)	CATAL		23	;	52	23	ł	88	56		8	8	1		8	01		2
CIAS O	AFFE	4	91	•	왕	38	ļ	73	017		9	£ <del>1</del>		ŀ	£3	143		£3
R ON	ATTENT TO	CWZNI	83	<u>-</u>	33	강당	1	88	1,8		1,8	17	!		17	91		ឧ
CLASSIFICATION OF CONTROLLER	(4) Can	D.FINE	18		18	£1 &2	I	25	75		15	38	ŀ	1	38	77	٠	147
CLASS OF CO	CESTACET	DALLA	#		771	경원	l	147	37		37	1,5	I	I	1,5	£4.		143
NOI	(જુ	NEWS	97		97	٦w		7	36		16	앍	1	ł	19	%		56
CLASSIFICATION OF PILOT		INFO	Ж		35	22	ı	53	017		1,0	뎌	ł	I	171	ᄄ		저
CLASS	MES	DATA	719		119	<b>83</b>	ļ	70	73		114	크	ł	I	크	ξη		61
	ACES	TOTAL	105		105	423	0	%	194		194	32	0	0	፠	ਲੋ		18
	NUMBER OF MESSAGES	CITTLE	62		62	ដន	0	%	108		108	88	O	0	59	677		677
	NUMBER	PILOT	£11		143	9 در	10	Ç	8		8	27	Ö	0	27	3%		35
	AVTATION	CATEGORY	Air Carrier	Military Gen Aviation	TOTALS	Air Carrier	Gen Aviation	momat.	Air Carrier	Military Gen Aviation	r)CYPA 7	Air Carrier	Military	Gen Aviation	7,000	Air Carrier	Military Gen Aviation	TOTAL
	***************************************	DATE AND TIME	20 May 1959	(1600-1800)		23 May 1959	(mgr-mtr)		2), May 1959	(1600-1800)		Calculation and the second	6641 (B) (67)	(000T-00TT)		050 L How	(0081-0091)	

Table I-13

IND-HOUR DIN TOTAIS FOR RADAR 1B CONTROL POSITION

	NOTHATVA	NUMBER	NUMBER OF MESSAGES	AGES	CIASE OF MESS	CLASSIFICATION OF PILOT MESSAGES (%)	TION (%)	CLASSIFIC OF CONTRO MESSAGES	CLASSIFICATION OF CONTROLLER MESSAGES (%)	R ON	CLASS		NOI 1
	CATEGORY	PILOT	CNTTLR	TOTAL	DATA		NEWS	DATA	Ia'O	NEWS	DATA	SIN S	CMSMS
Air Carr Military Gen Avia	Air Carrier Military Gen Aviation	147 5	146 3	293 8	95 04	77. 77.	19	d !	1,0 67	33 33	239	ଜ୍ୟୁ	ରୁ ଧ
TOTALS	တူ	152	149	301	56	56	13	23	41	38	39	33	82
Lit C	Air Carrier Military	189	187	376	8 ! !	52 ! !	11	8:1	1 1 1	811	4 : :	38	表 : :
TOTALS	TOTALS	189	187	376	5,0	25	1.1	23	1.74	30	17	36	켮
r c lit	Air Carrier Military Gen Aviation	140 0	137	277	8::	1133	311	811	38	젊!!	9!!	811	ଷ । ।
TOTALS	ςς.	140	137	27.1	62	23	15	33	36	31	£ <u>†</u>	30	ଅ
Litter	Air Carrier Military Gen Aviation	107 3 0	152 8 0	259 11 0	1 6733	33	ω!!	4.1 75	<b>d::</b>	1 23 38	& E !	37	%% !
TOTALS	S	011	160	270	45	58	80	43	80	8	39	36	92
71 4	Air Carrier Military Gen Avlation	205 505 0	267 9 0	472 15 0	2001	4,1 1,7 	98:	#8:	1 1 1 2 1 8	33	881	1333	မ္တင္ဆ ၊
25	TOTALS	211	5/2	1,87	64	14	9	31	23	94	39	33	30

Table I-13 (Cont'd)

TWO-HOUR DIN TOTAIS FOR RADAR 1B CONTROL POSITION

						 			٧C	Tume	17	Page	1	
ricn r (%)	NEWS	25 37 20	%											
CLASSIFICATION OF TOTAL MESSAGES (%)	LINEO	56 50 50 50	O <sup>†</sup>				•			•				
CIAS O MBS	DATA	<i>%%3</i>	ಸೆ		_									
TON ER 6)	NEWS	፠ፚጷ	%									<del></del>		
CLASSIFI CATION OF CONTROLLER WESSAGES (%)	INFO	883	38	•										
CLAS OF C	DATA INFO	22,52	ಜ											
TION	NEAS	284	23											
CLASSIFICATION OF PILOT	ATA INFO N	113 117 22	715											
CIAS	DATA	146 33 67	97	•										
C	TOTAL	55.25	503											
	PITOT CUTIE TOTA	23,872	265											
	PILOT	9,881	238	·										
	AVIATION	Air Carrier Military	TOTALS					-						
	Stra cree contra	8 March 1960 (1600-1800)											· · · · · · · · · · · · · · · · · · ·	

Table I-14

TWO-HOUR DIN TOTALS FOR RADAR 2A CONTROL POSITION

·					<u>-</u>						—r			<del> </del> -	<del></del>		<del></del>
ATION (%)	NEWS	88	i		33	830	i	8	35		35	떢떢	!	31	33	1	82
CIASSIFICATION OF TOTAL MESSAGES (%)	OFFICE OFFICE OFFICE OFFICE OFFICE OFFI OFFI OFFI OFFI OFFI OFFI OFFI OFF	% ኢ	<b>}</b>	i I	12	330	:	33	83		23	35	i	31	36	į	37
CIAS	DATA	õ, n	`	l i	04	07	1	Q.	5.4		745	33	i	88	386	1	#
N S	NEWS	<i>2</i> 4 %	5	<u>.</u>	5.1	04 74	i	47	ဇ္တ		30	75.75	<del></del>	갘	833	1	36
CLASSIFICATION OF CONTROLLER MESSAGES (4)		52	! !	:	80	#8	t i	31	21		22	<b>*</b> 김	i	<del>1</del> 2	88	t i	25
CLASSIFIC OF CONTRO	DATA	85	‡	i i	62	\$ \$	i i	88	64		64	35 35 35	1	35	33	1	04
TION	NEWS	, my	8	i	ដ	21	1	77	ť†		4.1	었 :	ŀ	17	디오	!	13
CLASSIFICATION OF PILOT	3 1	ક્ટે	\$	I	35	33,6	1	30	88		56	36	1	41	50	:	式
CLAS	DATA	72	1	i I	53	26	. !	56	33		33	3 %	? !	, 1,1	£ 64	i i	27
OH OH	TOTAL	72	8	0	%	122 35	;0	157	09		9	5,1 5,5	,0	%	63	0	8
	CNTLR TOT	Q	σ	0	49	70	0	87	33		33	8,89	90	55	36	· o .	53
	PILOT	32	コ	0	143	ς. Ω.α.	0	70	27		12	22 -	, o	<b>1</b> 43	27 10	0	37
	CATEGORY	Air Carrier	Militery	Gen Aviation	TOTALS	Air Carrier	Gen Aviation	TOTALS	Air Carrier	Military Gen Avistion	TOTALS	Air Carrier	Gen Aviation	TOTALS	Air Carrier	Gen Aviation	TOTALS
	ארדיי כתאה שיויאני	15 May 1959	(0900-1000)			20 May 1959	(mor-m+r)		21 May 1959	(0091-00†1)		23 May 1959	(ADDT-00+T)		25 May 1959	(mar-mar)	

TWO-HOUR DIN TOTALS FOR RADAR 2B COMTROL POSITION

					CLASS	120	NOIL	CLASSIFIC OF CONTRO	CLASSIFICATION OF CONTROLLER MESSAGES (4)	N 85	CIAS: OI	CIASSIFICATION OF TOTAL MESSAGES (%)	rion (%)
DATE AND TIME	CATEGORY	PILOT	TIOT CUTLE TOT	TOTAL	DATA	TA INFO	NEWS	DATA		NEVS	DATA		MEMS
21 May 1959 (1400-1600)	Air Carrier Military	74 17	<b>₹</b> 9	148 29	1.4 14.7	39 35	8 8 8	20	0,0	70 83	ಜಿಕ್ಟ	₹ ದ	45
	Gen Aviation	° 5	0 %	0 121	- 24	ا هج	: 8	: 8	; œ	72	니 뭐	청	4.5
21 May 1959 (1600-1800)	Air Carrier Military Gen Aviation	, 21 <sub>1</sub>	82 r	181 48	4%0	33. 55.	150	54 0 0	ξ <del>1</del> 80	45 62 100	74 38 0	233	1683
	TOTALS	-86	109	203	53	33	17	39	47	84	45	23	8
23 May 1959 (1400-1600)	Air Carrier Military Gen Aviation	42 9 4	ଝ୍ଞଳ	169 18 7	33 25 25	41 67 75	000	38 17 67	27 17 33	35 67	88 g.f.	SSE S	840
	TOTALS	<b>ಪೆ</b>	110	1.8 1.8	38	47	18	36	56	37	37	휷	53
23 May 1959 (1600-1800)	Air Carrier Military Gen Aviation	<b>67</b> 0 18	64 0 81	80%	39	£5 25 25	16 39	21 12	35	# 1 #	# 1 8g	경기원	30
	Tomes	29	19	134	39	39	83	ผ	36	43	30	37	33

#### B. DIN CHARTS

The following six cycles of DIN charts are designed to permit ready evaluation of the parts played by the pilots in each aviation category and the controllers and communicators in each facility. The most general results are given first, with the following cycles presenting progressively more detailed data.

Since some of the charts are based on relatively small samples because of very detailed data breakdowns, the DIN tables should be consulted for sample size whenever extreme results are shown. The sample sizes for the air carrier category are usually the largest and, hence, the most reliable. (The exception is the Station Position B which selder deals with commercial aircraft.)

#### 1. Overall Facility and P.sition DIN Profiles

Figure I-2 shows the overall DIN profile for each facility. That is, the total message sample for all positions recorded in each facility was used, with pilot and controller/communicator messages lumped together. The Tower and Center profiles are further broken down by Functional Control Position in Figures I-3 and I-4. Overall DIN profiles for each position are given in Figures I-5 through I-11. In these, as in all of the DIN profiles, the sum of the percentages given in each profile is 10%.

Information

MEDBAGE CLASSIFICATION

News

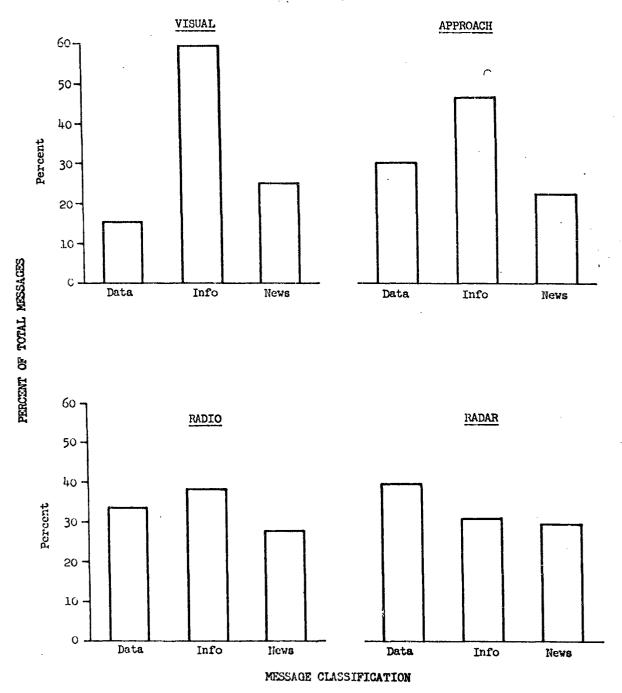
0

Data

Figure I-3

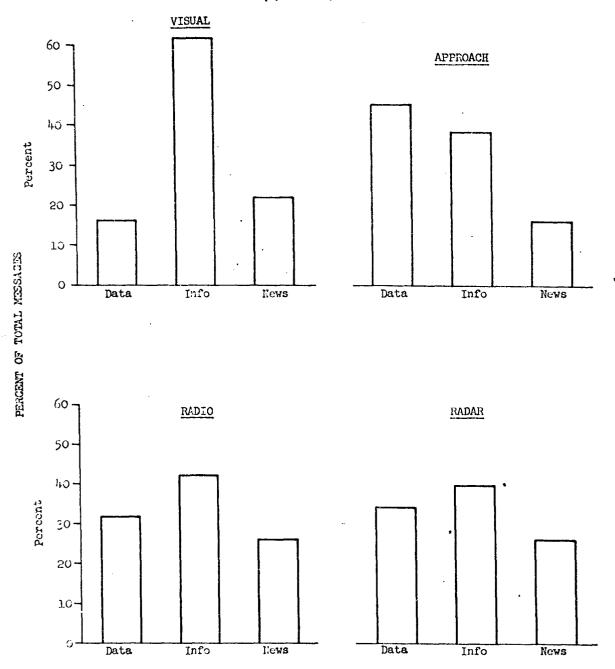
### DIN PROFILES FOR THE FUNCTIONAL CONTROL POSITIONS

(1959 Data)



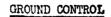
# DIN PROFILES FOR THE FUNCTIONAL CONTROL POSITIONS

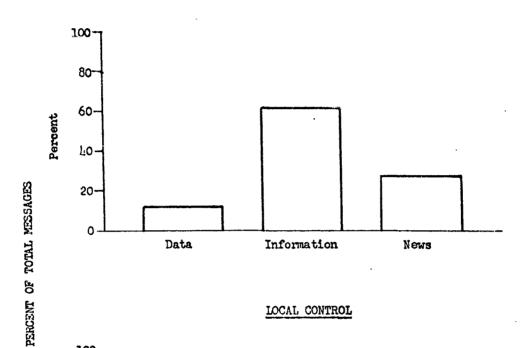
(1960 Data)



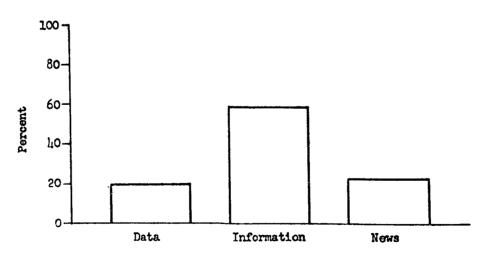
MESSAGE CLASSIFICATION

Figure I-5





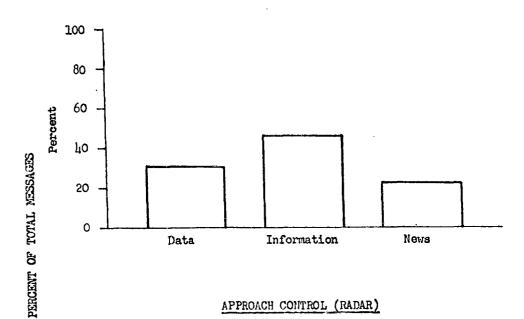
### LOCAL CONTROL



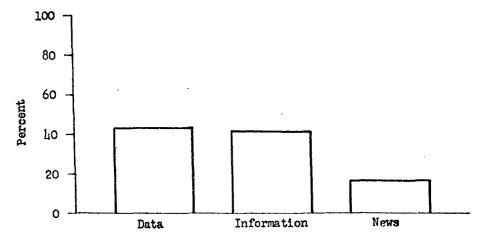
MESSAGE CLASSIFICATION

Figure I-6

# APPROACH CONTROL (ANG)



## APPROACH CONTROL (RADAR)



MESSAGE CLASSIFICATION

Figure I-7

### DEPARTURE CONTROL (ANC)

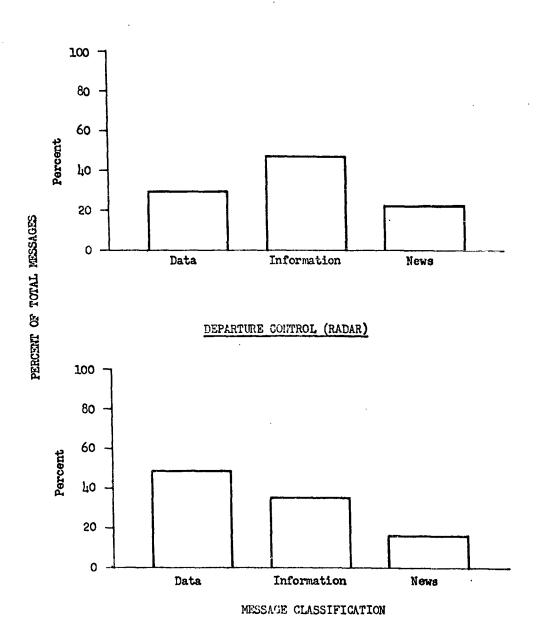


Figure I-8

OVERALL POSITION DIN PROFILES

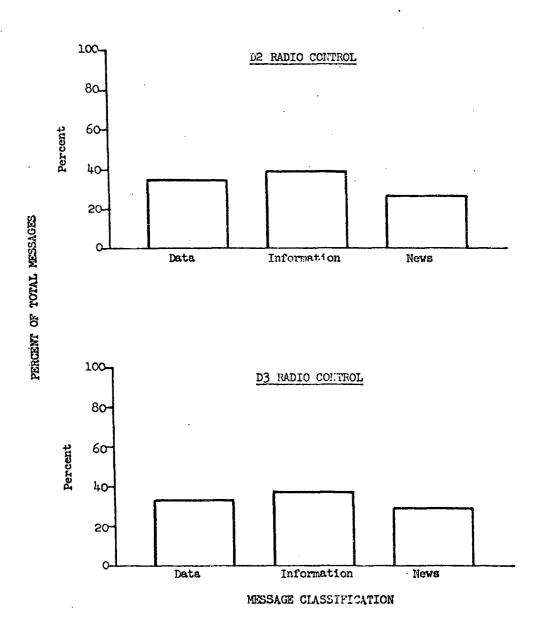
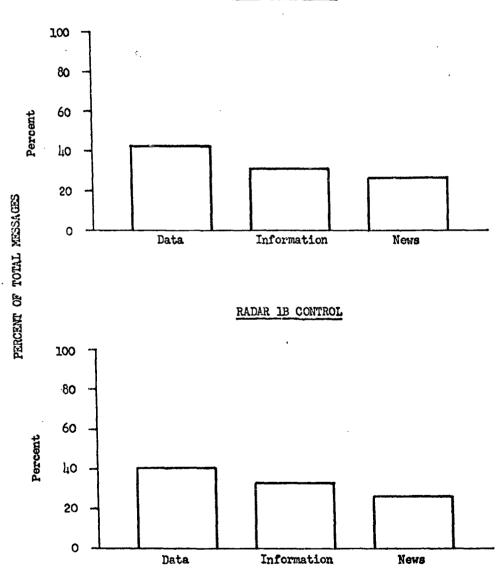


Figure I-9

### RADAR LA CONTROL



MESSAGE CLASSIFICATION

Figure I-10

### RADAR 2A CONTROL

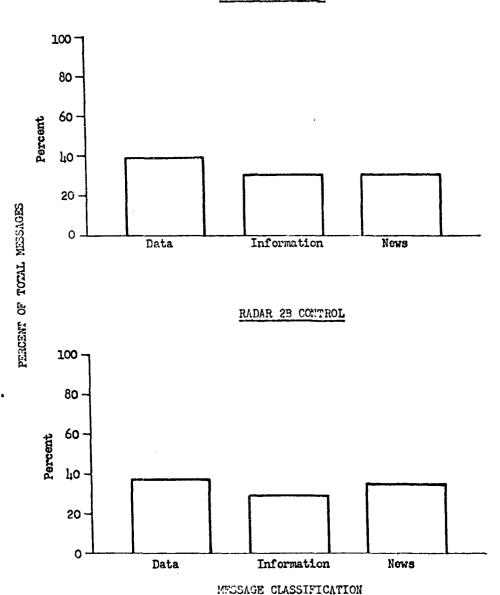
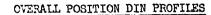
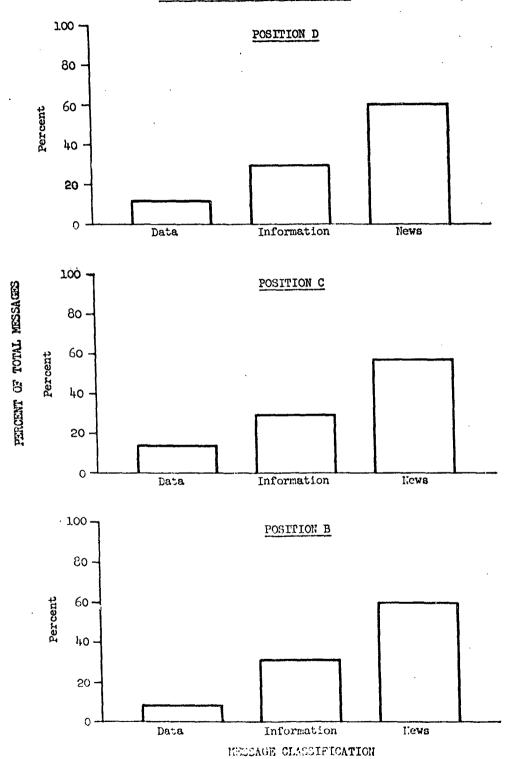


Figure I-11





#### 2. DIN Profiles by Originator

Figures I-12 through I-29 show the DIN profiles for each facility and each position broken down by pilot and controller/communicator. That is, all messages originated by pilots in communicating with a particular facility or position constitute a message sample which is shown as a pilot profile. Similarly, the bottom profile in each figure is that for the controller/communicator message sample.

# TOWER-DIN PROFILES BY ORIGINATOR

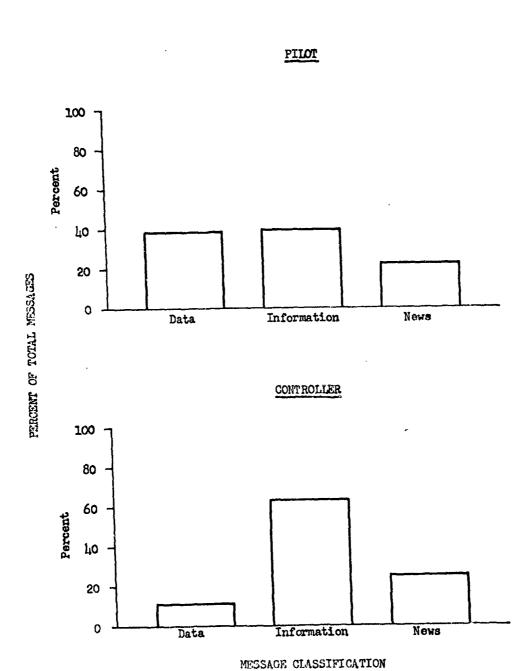


Figure I-13

### GROUND CONTROL-DIN PROFILES BY ORIGINATOR

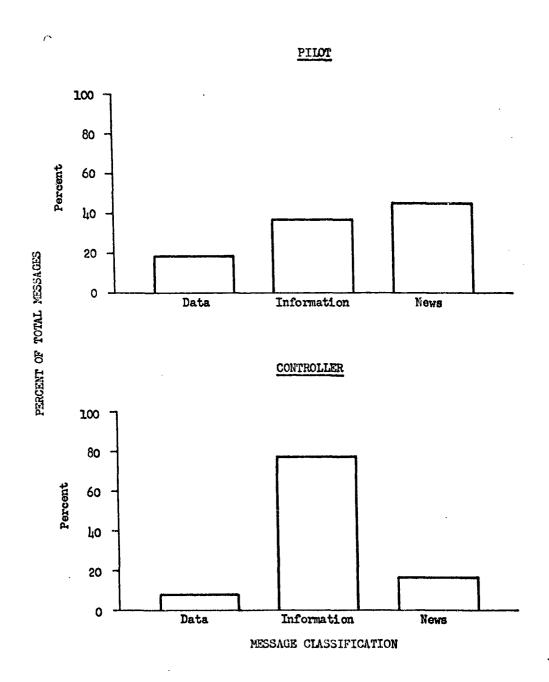


Figure I-14

### LOCAL CONTROL-DIN PROFILES BY ORIGINATOR

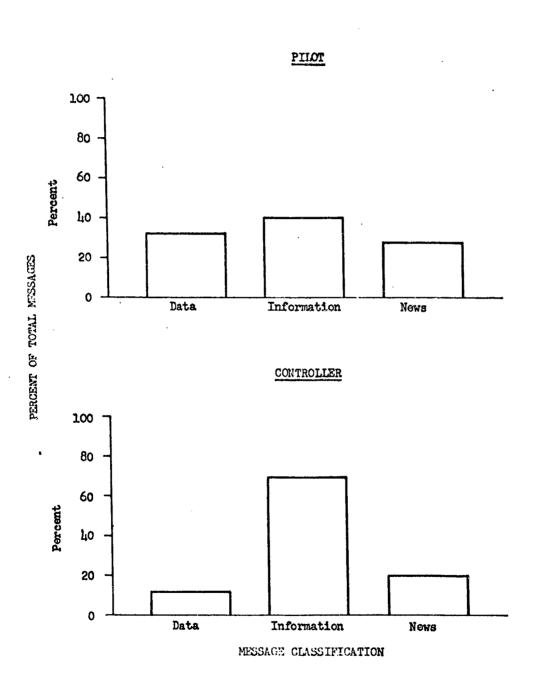


Figure I-15

# APPROACH CONTROL (ANC)-DIN PROFILES BY ORIGINATOR

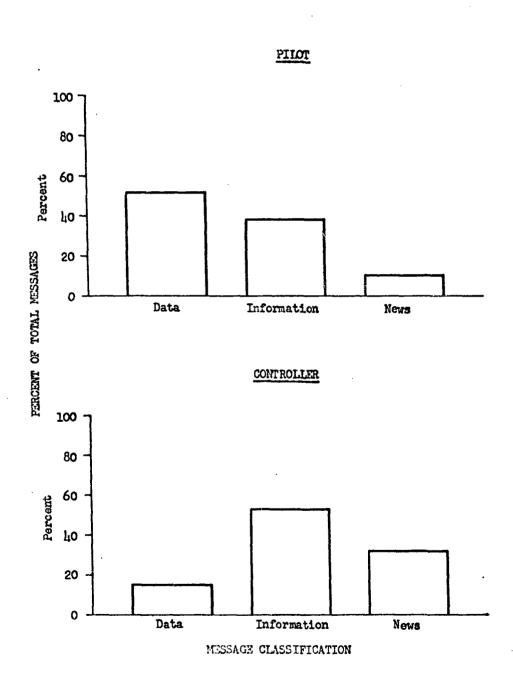


Figure I-16
APPROACH CONTROL (RADAR)-DIN PROFILES BY ORIGINATOR

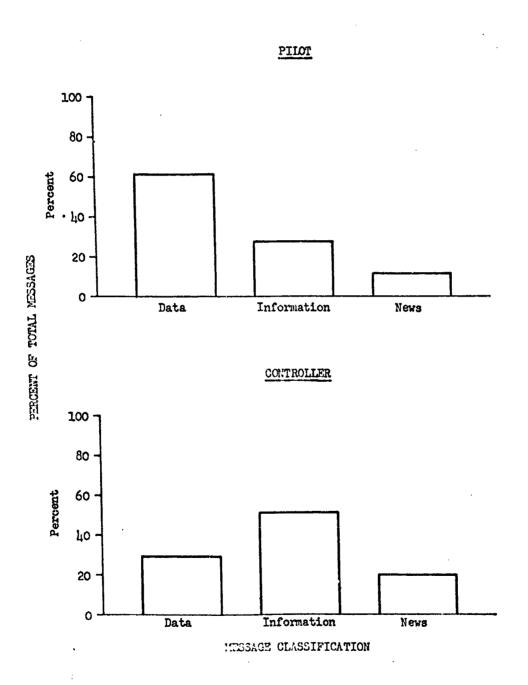
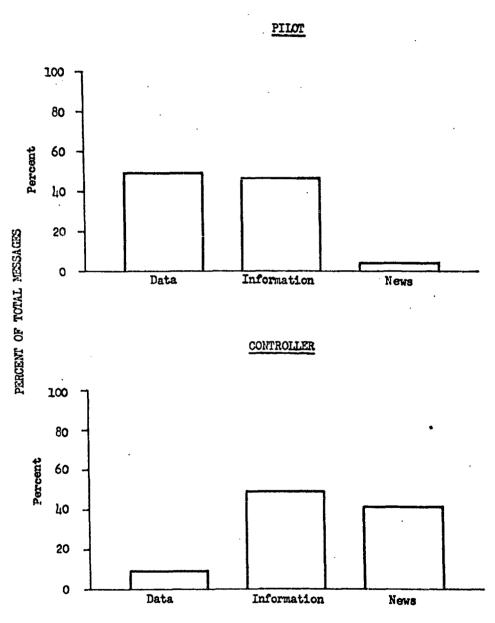


Figure I-17

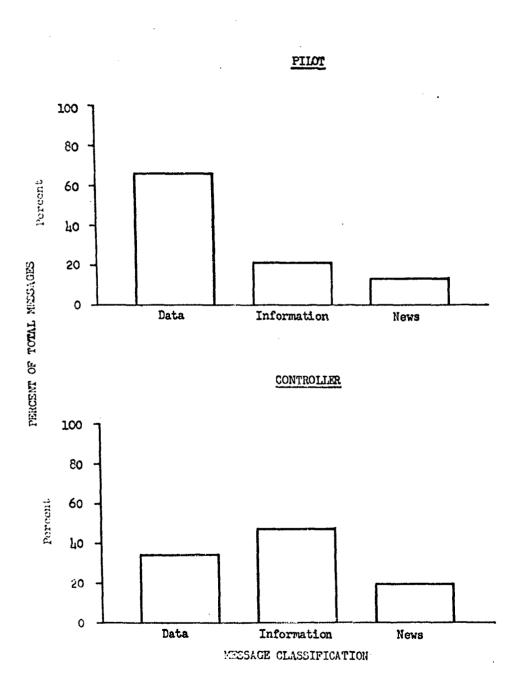
### DEPARTURE CONTROL (ANC)-DIN PROFILES BY ORIGINATOR



MESSAGE CLASSIFICATION

Figure I-18

# DEPARTURE CONTROL (RADAR)-DIN PROFILES BY ORIGINATOR



1 4

Figure I-19

### CENTER DIN PROFILES BY ORIGINATOR

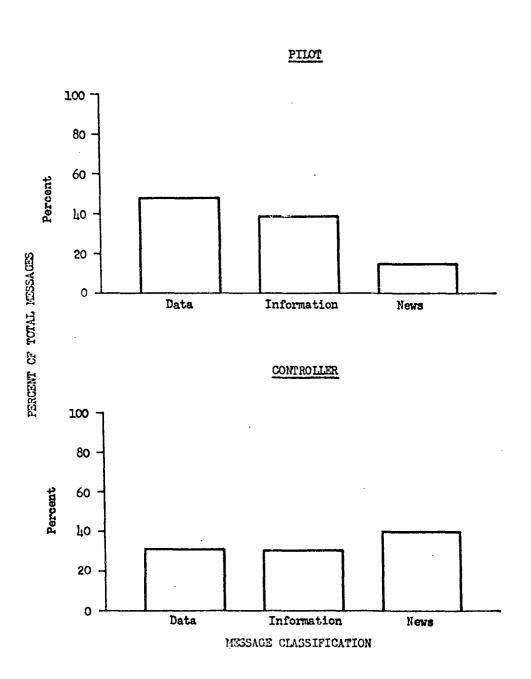


Figure I-20

### D2 RADIO CONTROL-DIN PROFILES BY ORIGINATOR

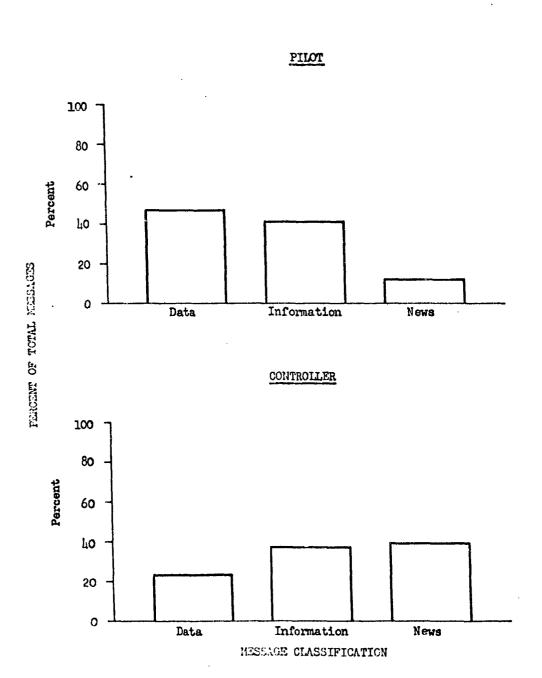


Figure I-21

# D3 RADIO CONTROL-DIN PROFILES BY ORIGINATOR

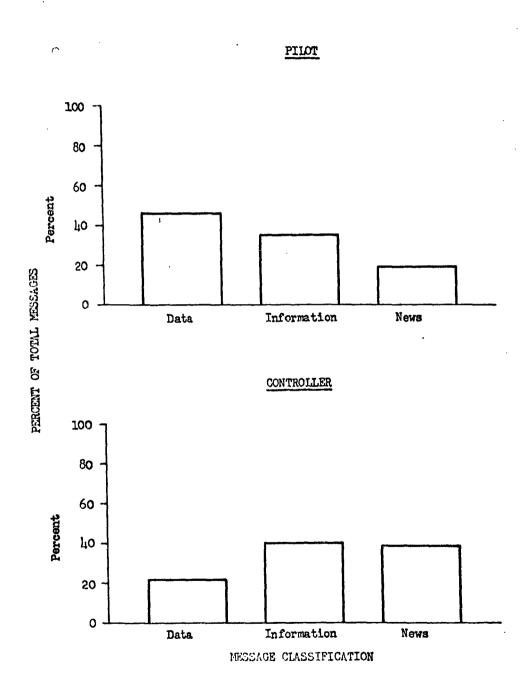


Figure 1-22

### RADAR 1A CONTROL-DIN PROFILES BY ORIGINATOR

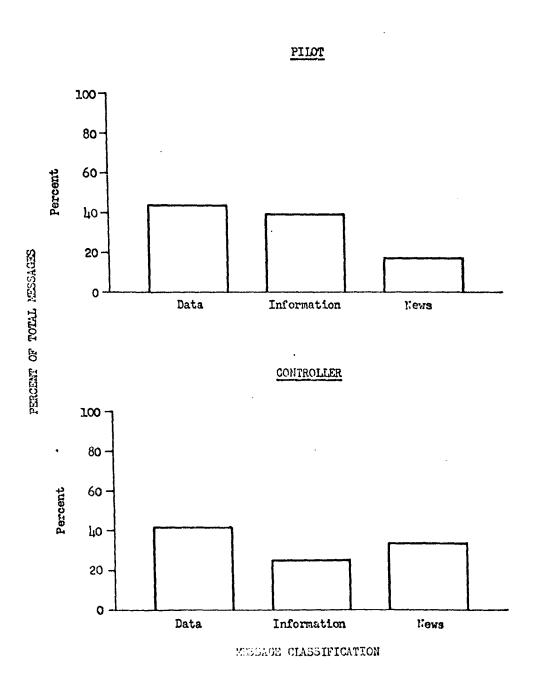
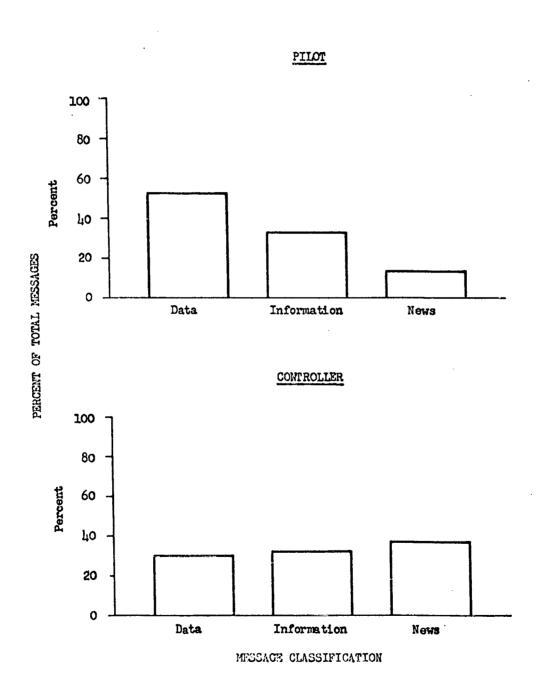


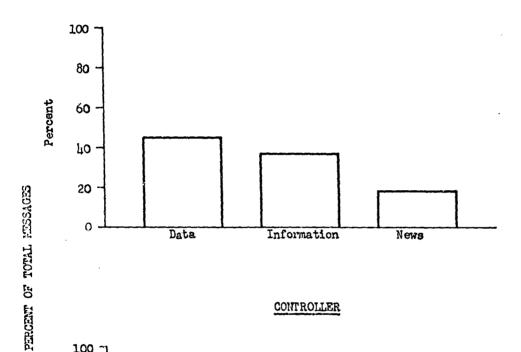
Figure I-23

RADAR 1B CONTROL-DIN PROFILES BY ORIGINATOR

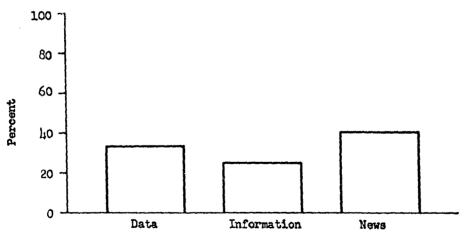


# RADAR 2A CONTROL-DIN PROFILES BY ORIGINATOR





### CONTROLLER



MESSAGE CLASSIFICATION

Figure I-25

### RADAR 2B CONTROL-DIN PROFILES BY ORIGINATOR

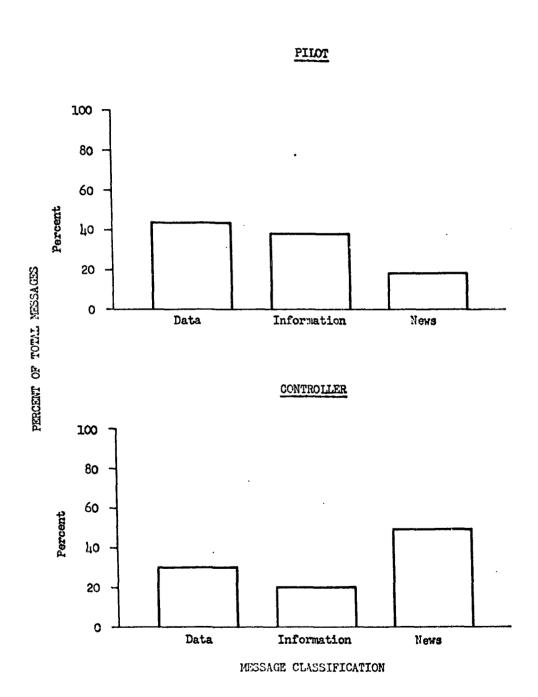


Figure I-26

### STATION DIN PROFILES BY ORIGINATOR

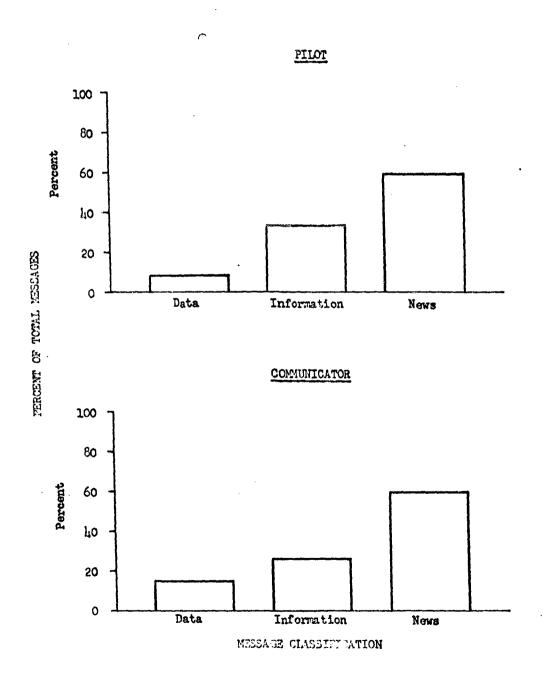


Figure I-27

### STATION POSITION D-DIN PROFILES BY ORIGINATOR

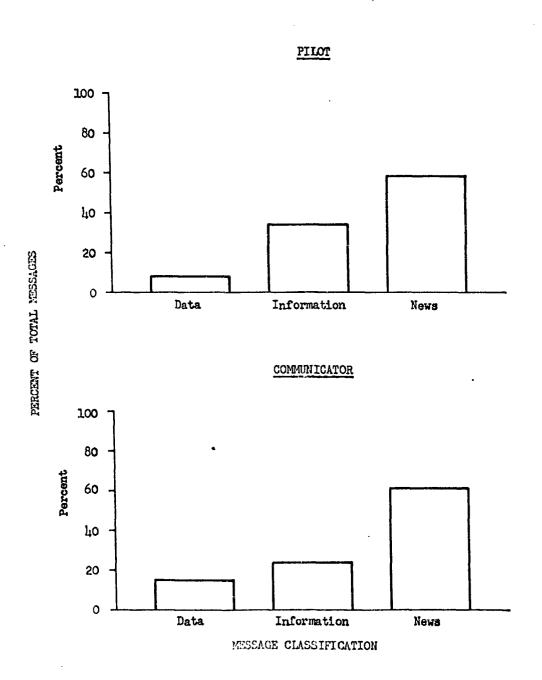


Figure I-28

# STATION POSITION C-DIN PROFILES BY ORIGINATOR



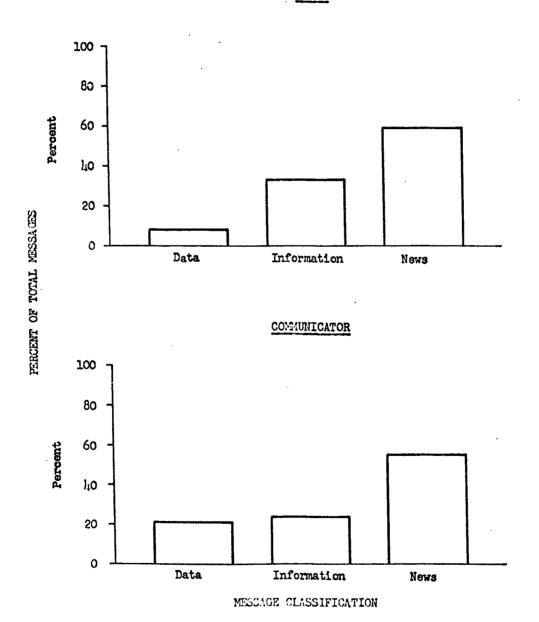
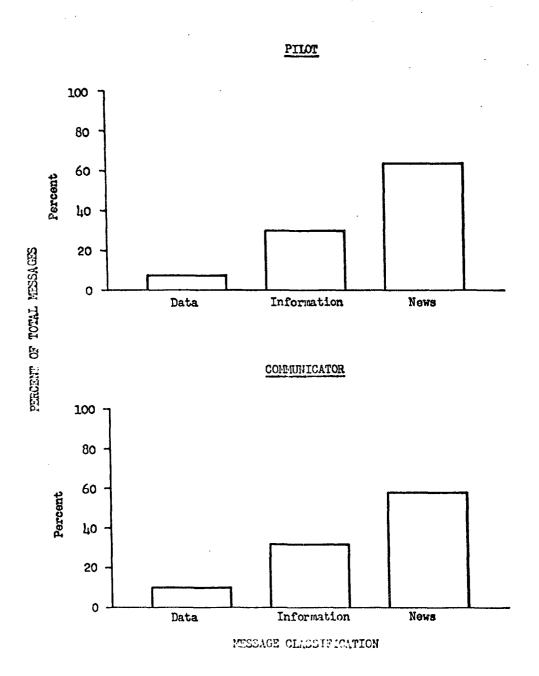


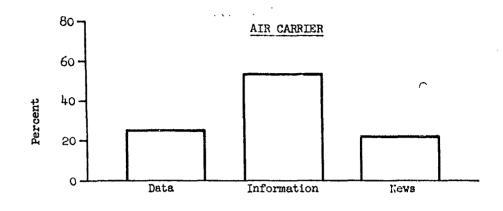
Figure I-29
STATION POSITION B-DIN PROFILES BY CATEGORY

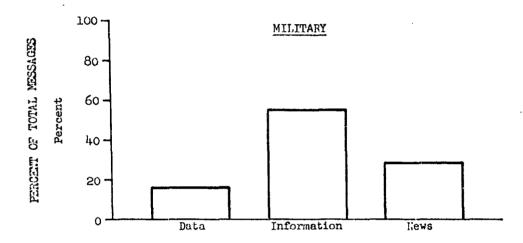


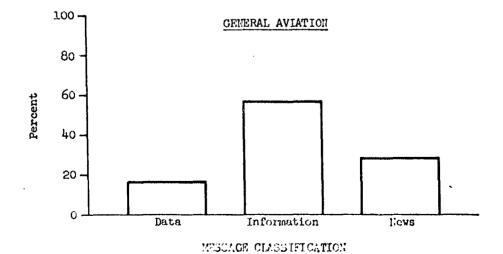
## 3. DIN Profiles by Aviation Category

Figures I-30 through I-47 show the DIN profiles for each facility and each position broken down by aviation category. That is, all messages originated by pilots and controller/communicators within an aviation category are used to obtain the overall profile for that category. As before, the sum of the percentages shown in each profile is 100%.

### TOWER DIN PROFILES BY AVIATION CATEGORY



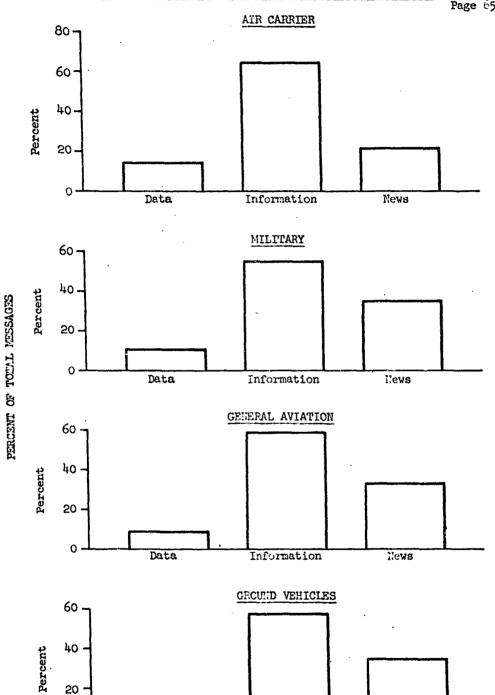




20

Data

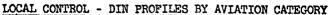
#### GROUND CONTROL - DIM PROFILES BY AVIATION CATEGORY

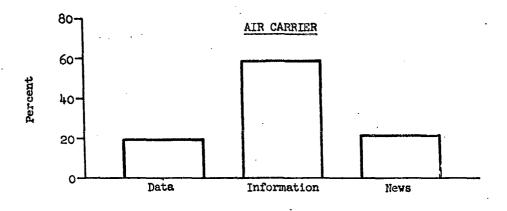


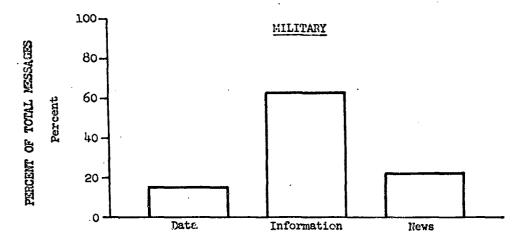
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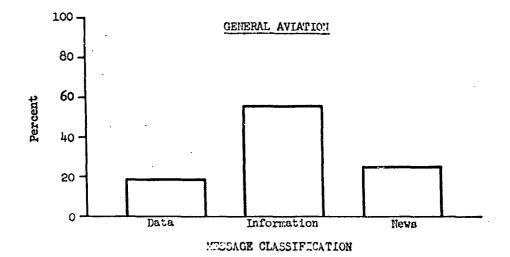
llews

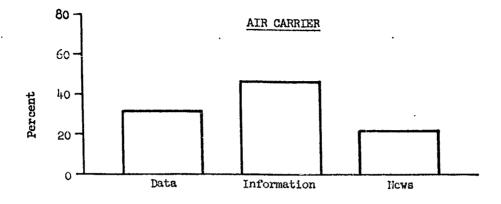
Figure I-32

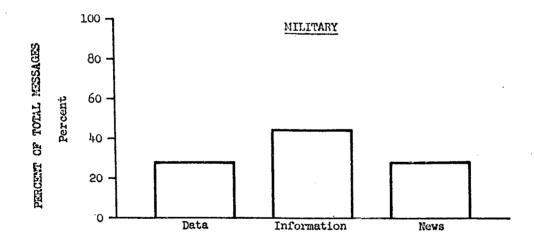


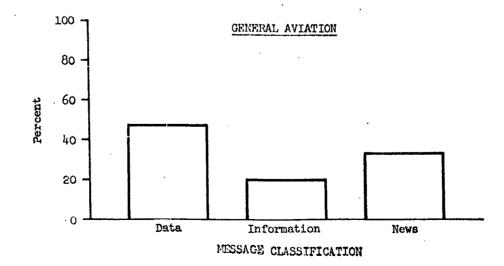




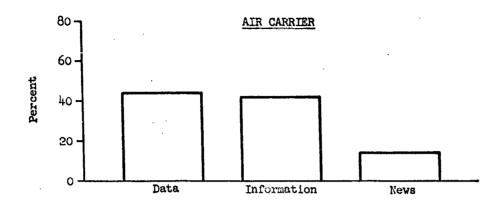


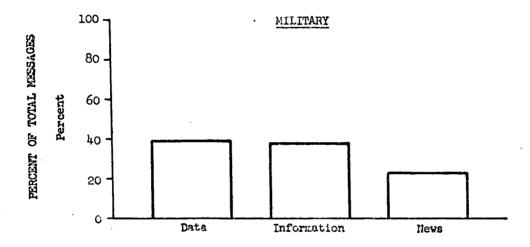


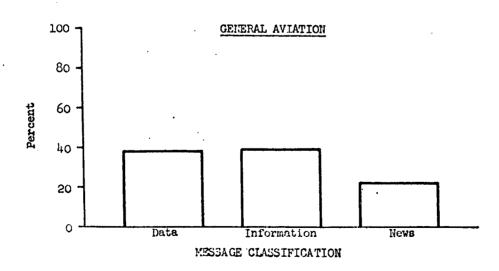




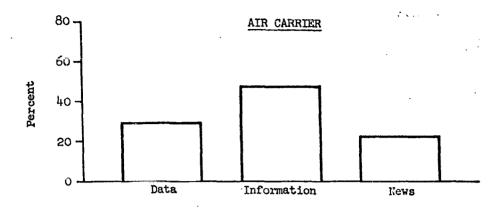
APPROACH CONTROL (RADAR) - DIN PROFILES BY AVIATION CATEGORY

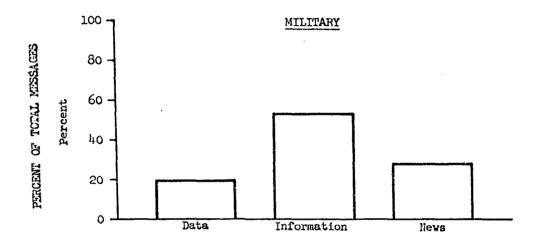


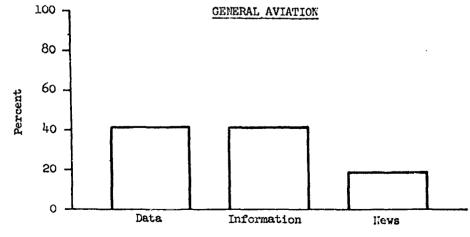




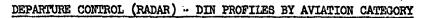
DEPARTURE CONTROL (ANC) - DIN PROFILES BY AVIATION CATEGORY

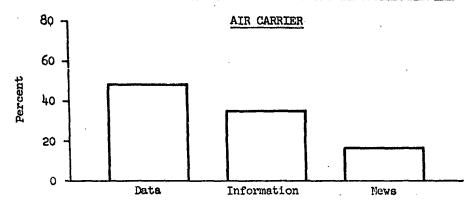


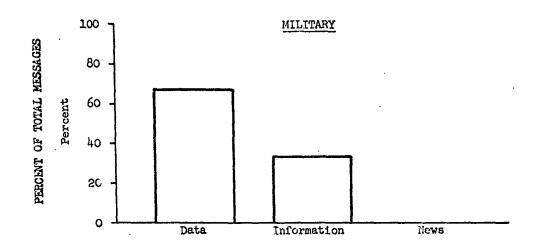




MESSAGE CLASSIFICATION







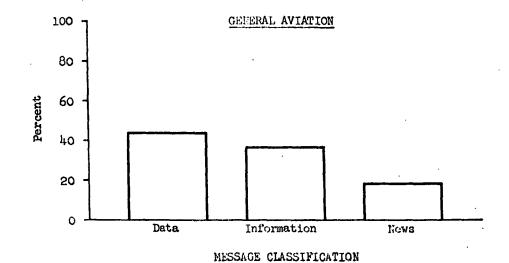
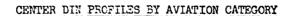
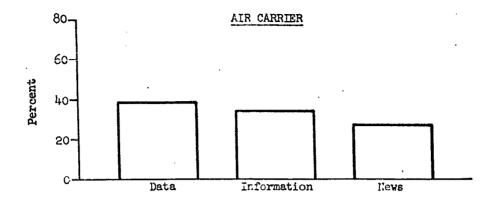
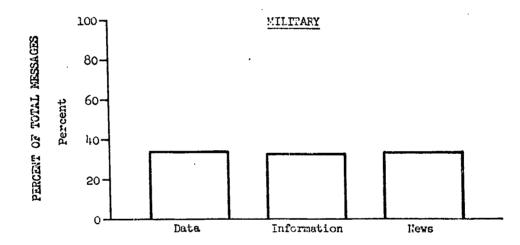
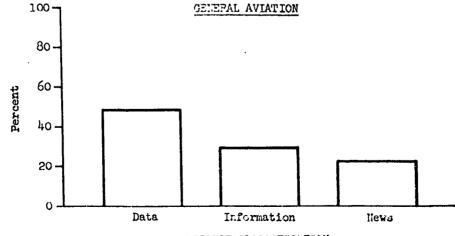


Figure I-37



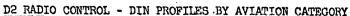


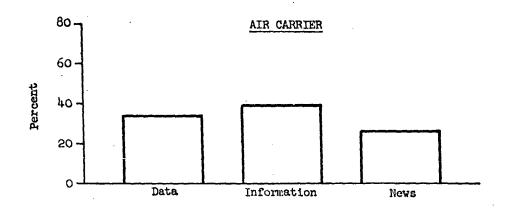


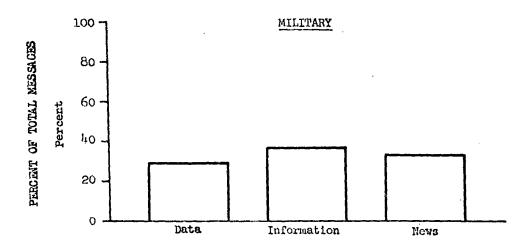


MESSAGE CLASSIFICATION

Figure I-38







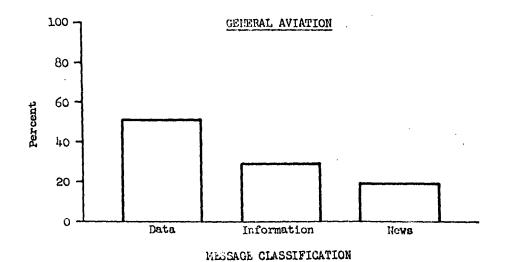


Figure I-39

D3 RADIO CONTROL - DIN PROFILES BY AVIATION CATEGORY

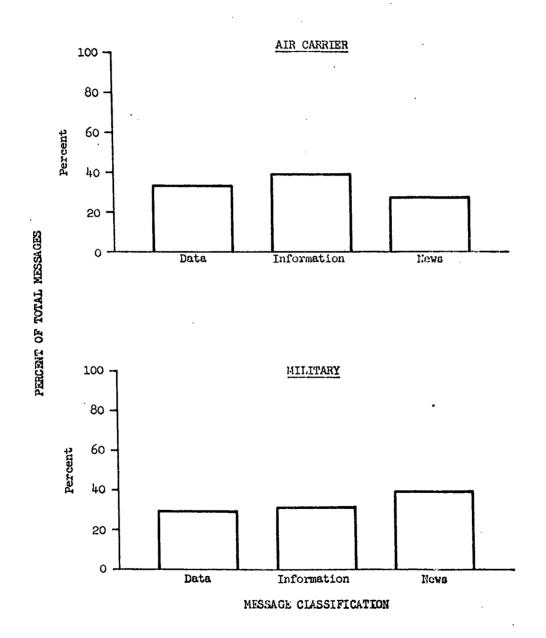


Figure I-40

RADAR 1A CONTROL - DIN PROFILES BY AVIATION CATEGORY

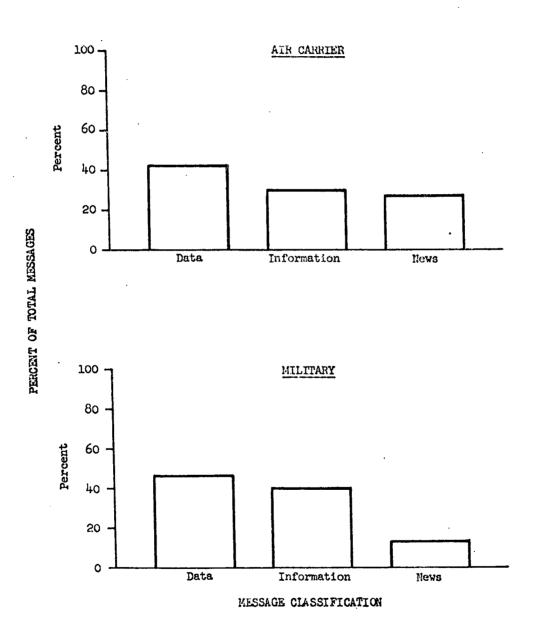


Figure I-41

RADAR 1B CONTROL - DIN PROFILES BY AVIATION CATEGORY

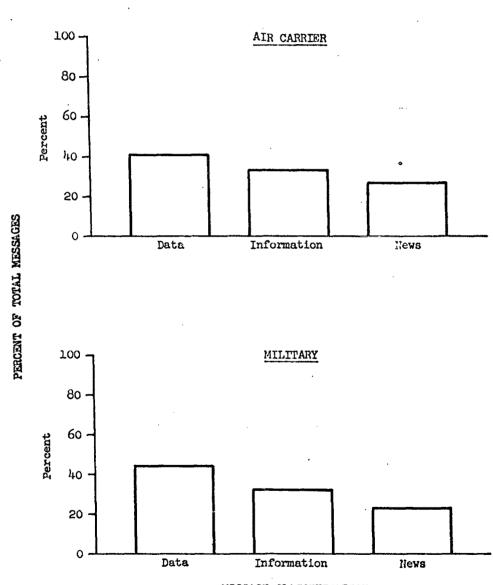


Figure I-42

RADAR 2A CONTROL - DIN PROFILES BY AVIATION CATEGORY

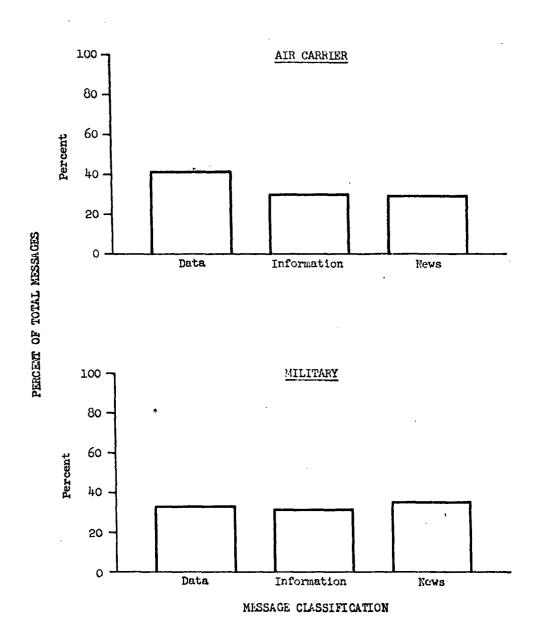
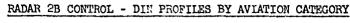
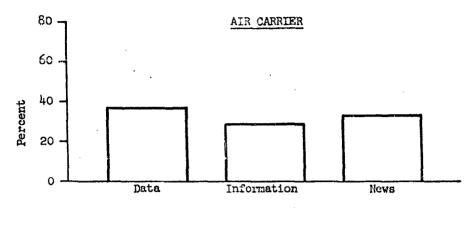
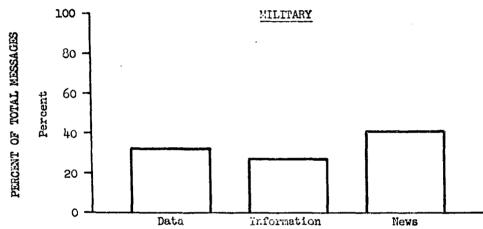
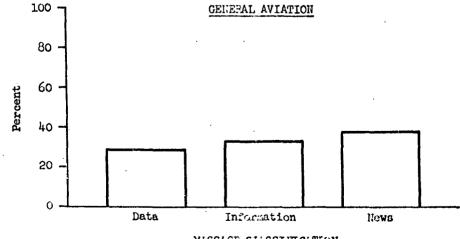


Figure I-43



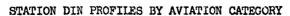


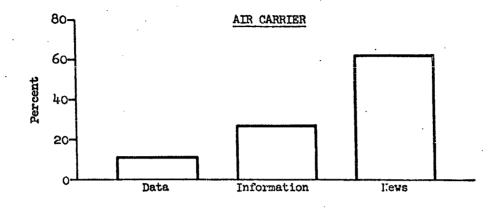


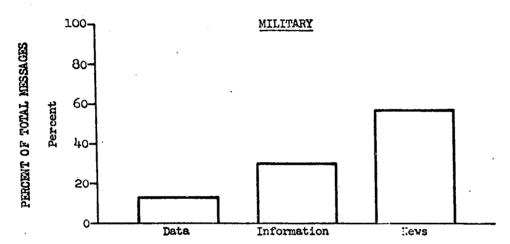


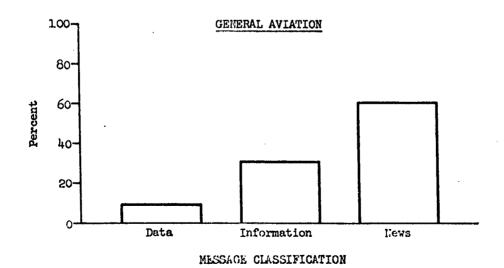
MESSAGE CLASSIFICATION

Figure I-44

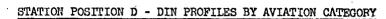


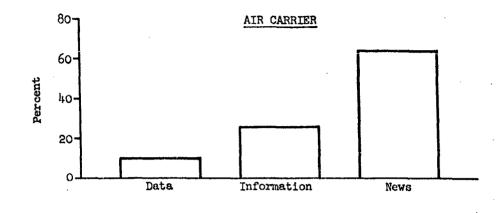


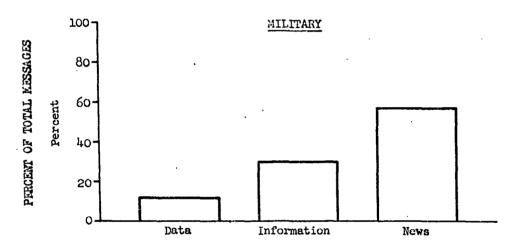


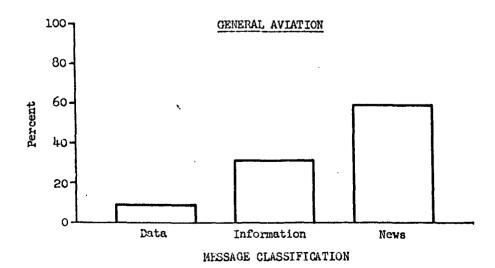


## Figure I-45

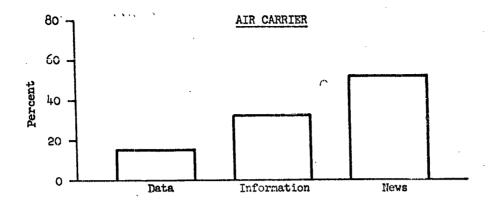


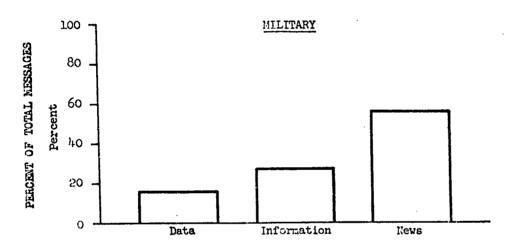


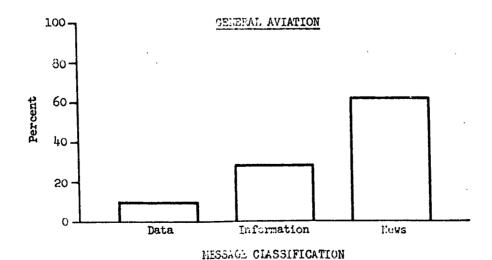




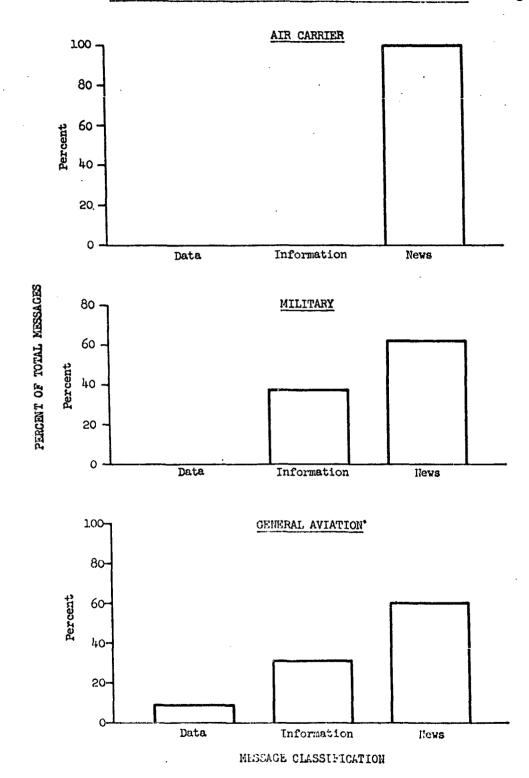
STATION POSITION C - DIE PROFILES BY AVIATION CATEGORY





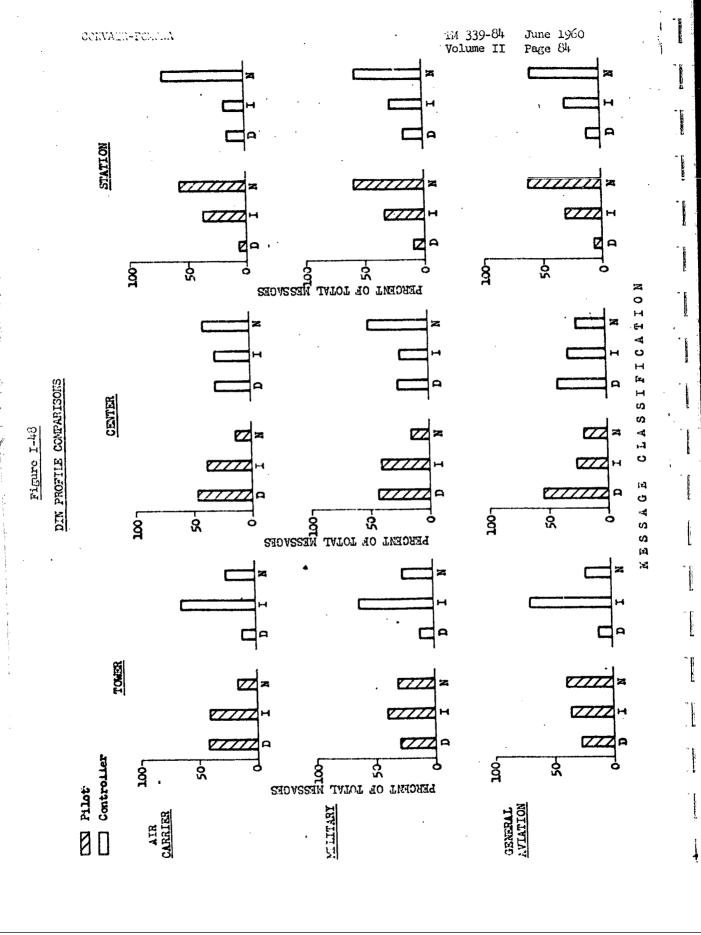


### STATION POSITION B - DIN PROFILES BY AVIATION CATEGORY



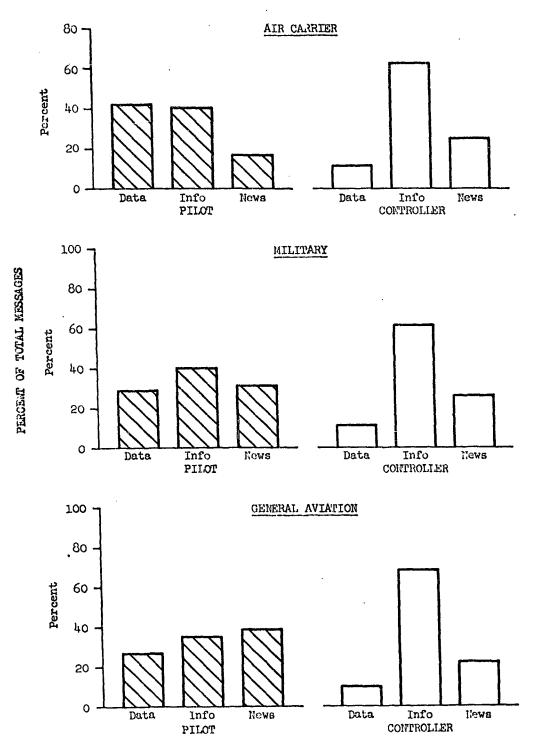
### 4. DIN Profiles by Originator and Aviation Category

In this cycle of charts the DIN profiles are shown in the most detailed breakdown which was made. Figure I-48 gives an overall comparison of the three facilities, while Figures I-49 through I-66 show the same type of profiles separately for each facility and each position. This cycle of DIN charts presents all of the tabular DIN data, with the exception of sample size. It must be noted, therefore, that the tables should be consulted for sample size before making firm conclusions based on charted differences.



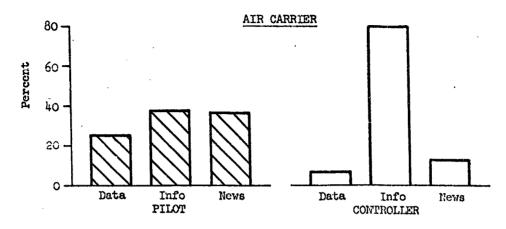
### Figure I-49

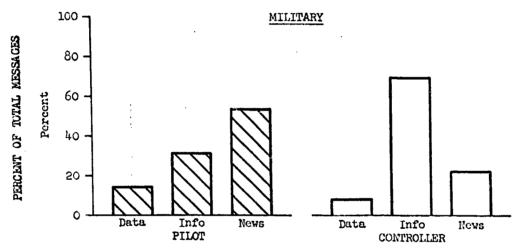
## TOWER DIN PROFILES BY ORIGINATOR AND AVIATION CATEGORY

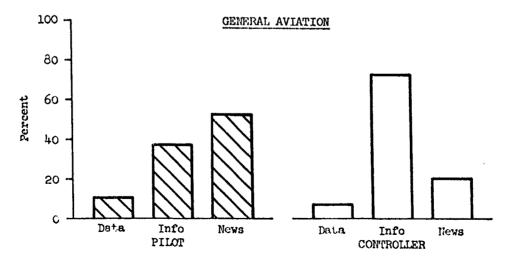


MESSAGE CLASSIFICATION

### GROUND CONTROL - DIN PROFILES BY ORIGINATOR AND AVIATION CATEGORY







MESSAGE CLASSIFICATION

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# LOCAL CONTROL - DIN PROFILES BY ORIGINATOR AND AVIATION CATEGORY

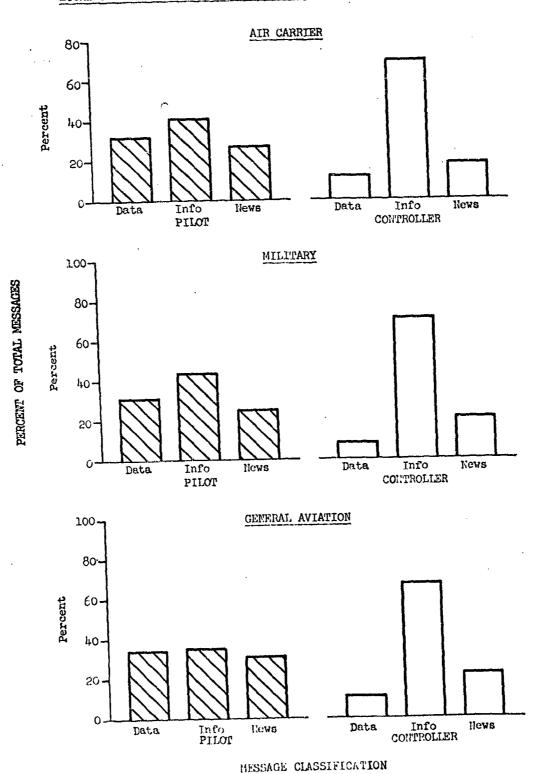


Figure I-52

APPROACH CONTROL (ANC) - DIN PROFILES BY ORIGINATOR AND AVIATION CATEGORY

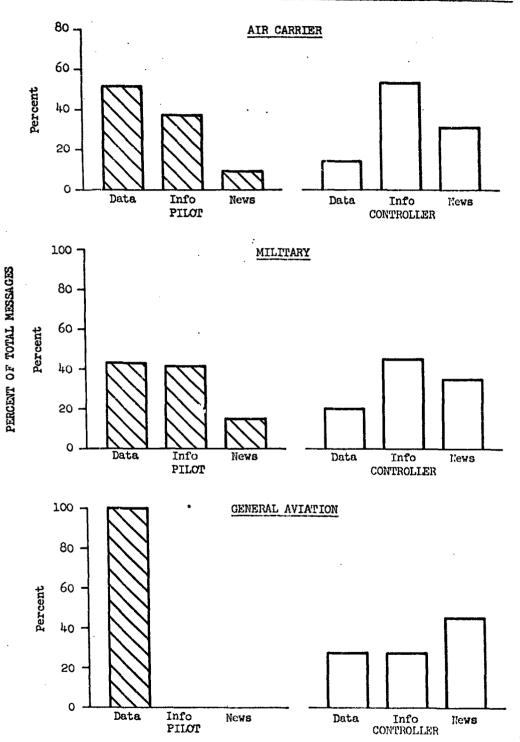
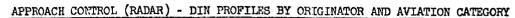
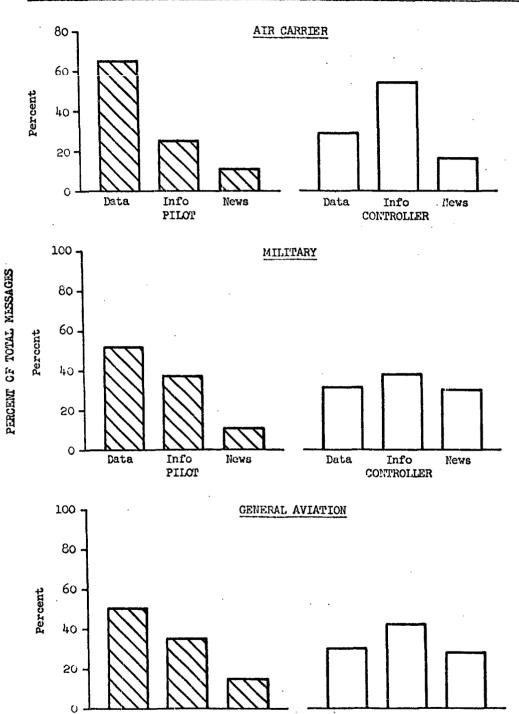


Figure I-53





MESSAGE CLASSIFICATION

Data

Info

CONTROLLER

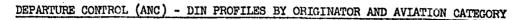
News

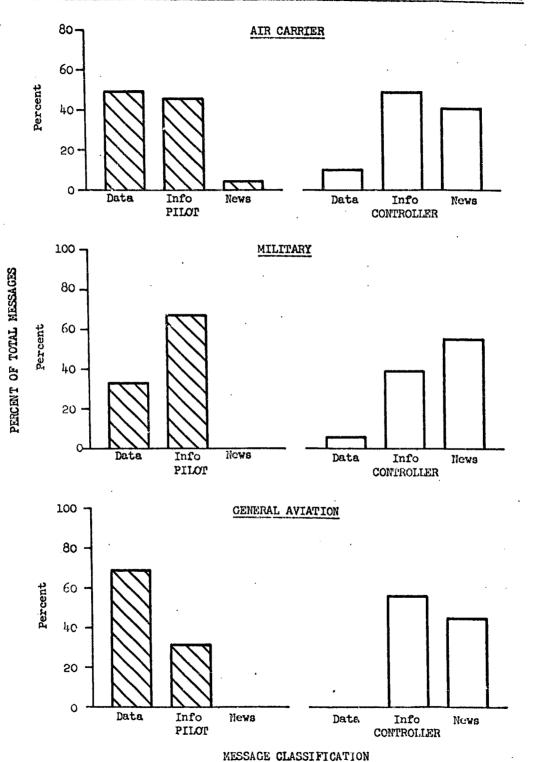
Info PILOT

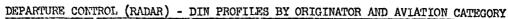
News

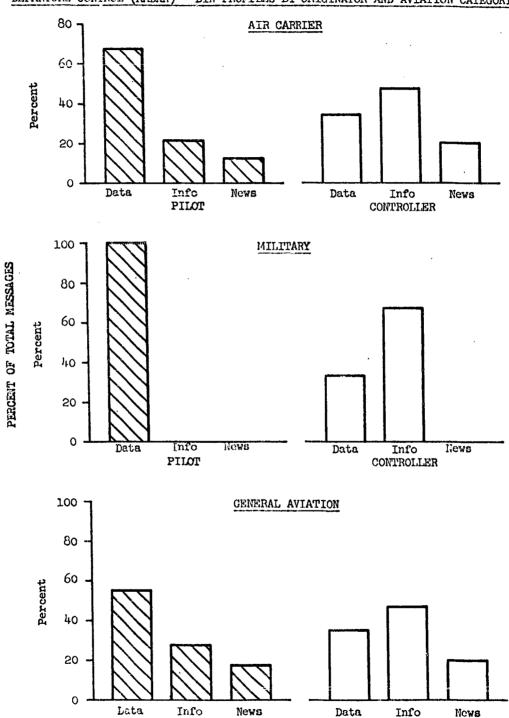
De.ta

Figure I-54





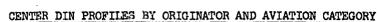


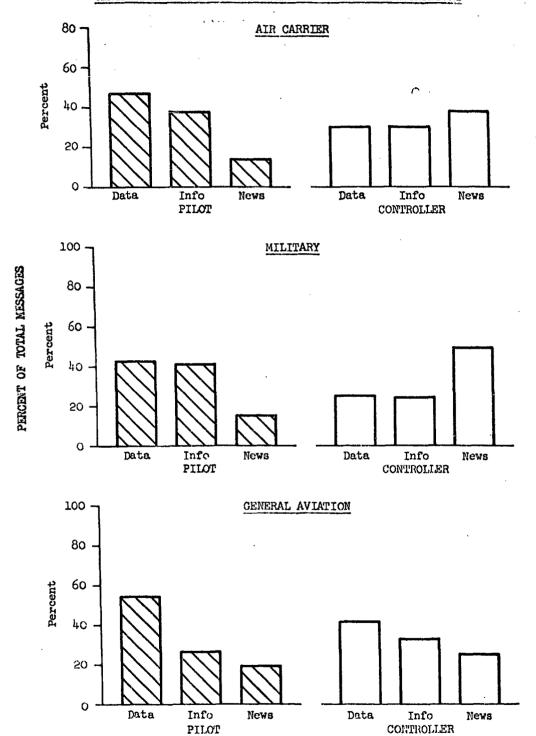


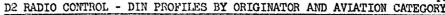
MISSAGE CLASSIFICATION

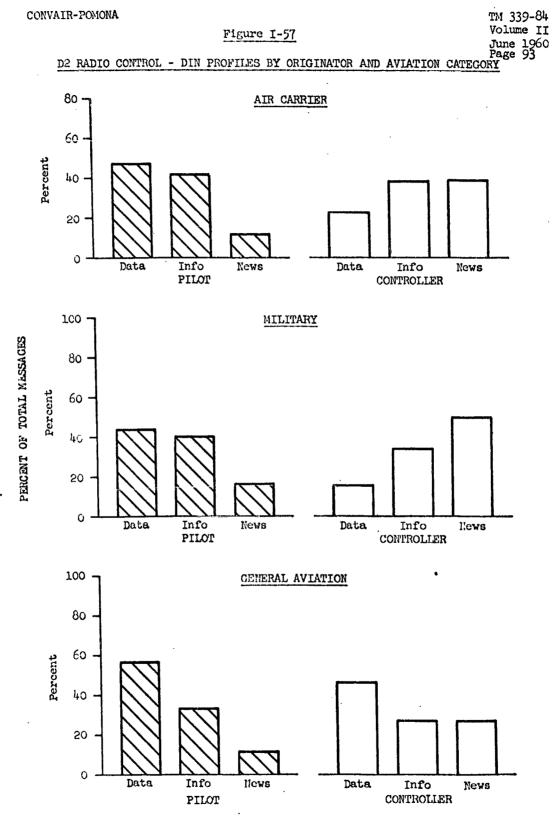
CONTROLLER

PHAR









MESSAGE CLASSIFICATION

Figure I-58

D3 RADIO CONTROL - DIN PROFILES BY ORIGINATOR AND AVIATION CATEGORY

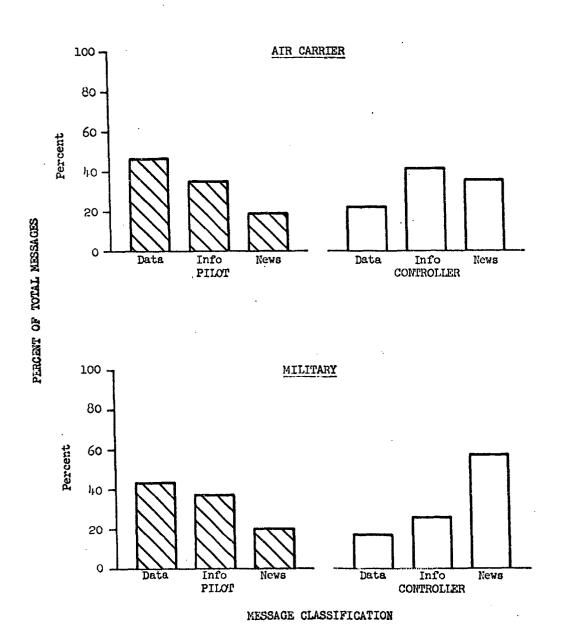
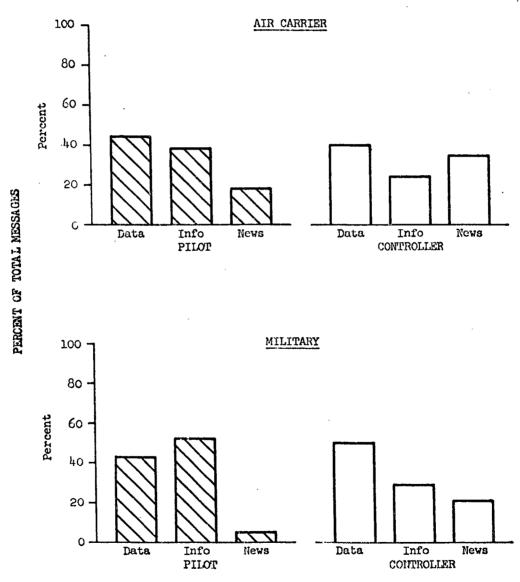


Figure I-59

RADAR 1A CONTROL - DIN PROFILES BY ORIGINATOR AND AVIATION CATEGORY



MESSAGE CLASSIFICATION

Figure I-60

RADAR 1B CONTROL - DIN PROFILES BY ORIGINATOR AND AVIATION CATEGORY

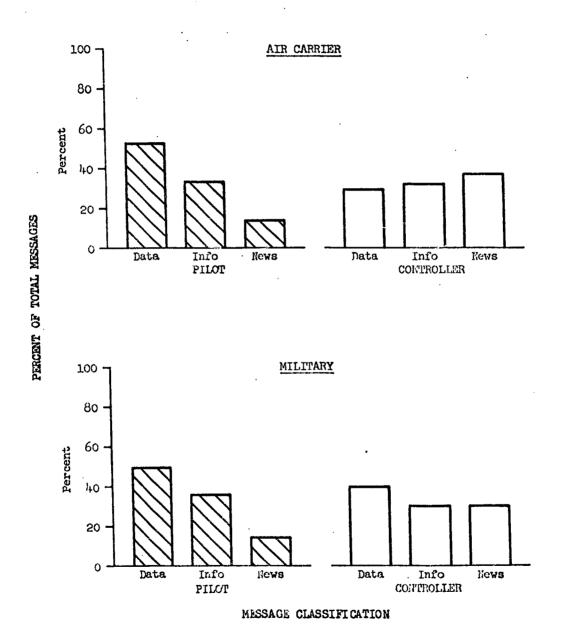
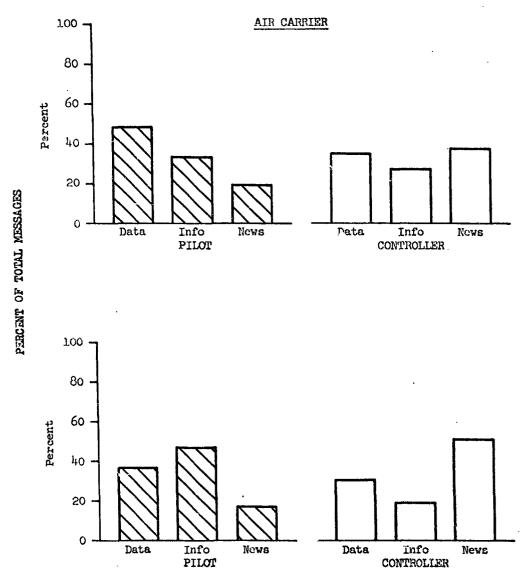


Figure 1-61

PADAR 2A CONTROL - DIN PROFILES BY ORIGINATOR AND AVIATION CATEGORY

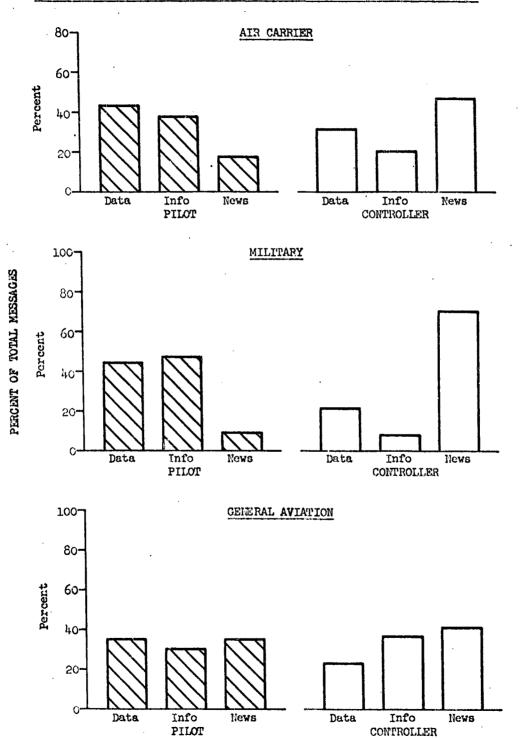


MESSAGE CLASSIFICATION

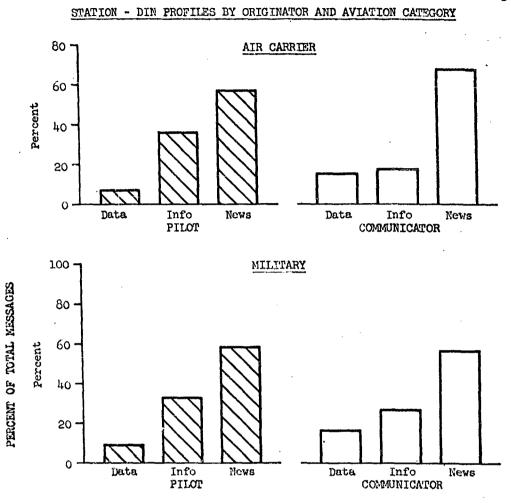
Figure I-62

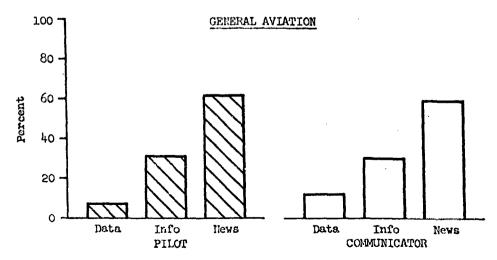
RADAR 2B CONTROL - DIN PROFILES BY ORIGINATOR AND AVIATION CATEGORY





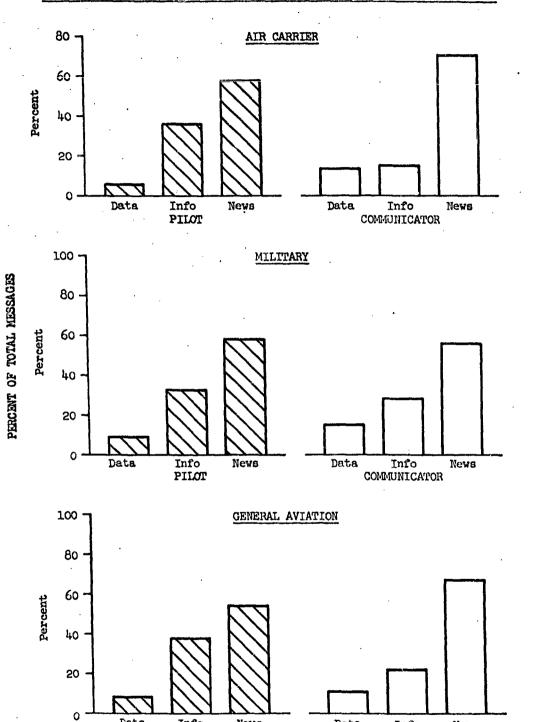
## Figure I-63





MESSAGE CLASSIFICATION

### STATION POSITION D - DIN PROFILES BY ORIGINATOR AND AVIATION CATEGORY



MESSAGE CLASSIFICATION

Data

Info

COMMUNICATOR

News

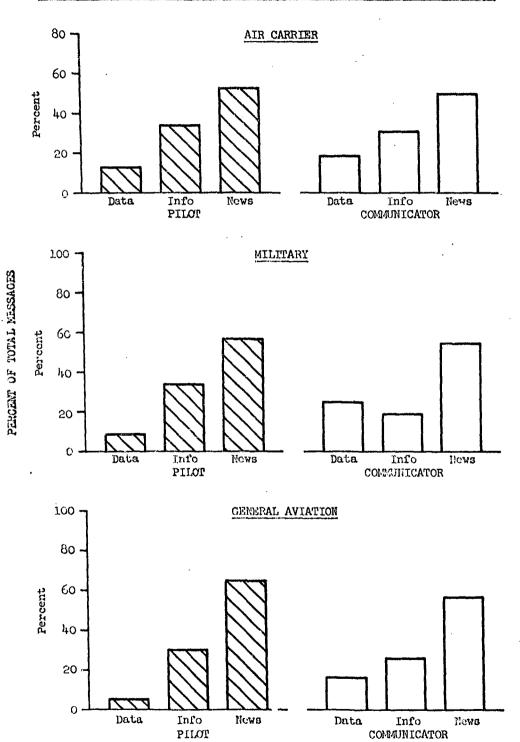
News

Data

Info

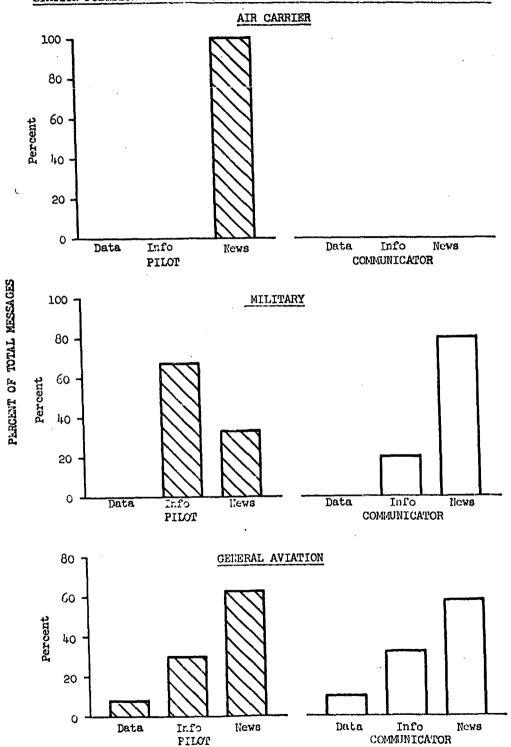
PILOT

### STATION POSITION C - DIN PROFILES BY ORIGINATOR AND AVIATION CATEGORY



MESSAGE CLASSIFICATION

### STATION POSITION B - DIT PROFILES BY ORIGINATOR AND AVIATION CATEGORY

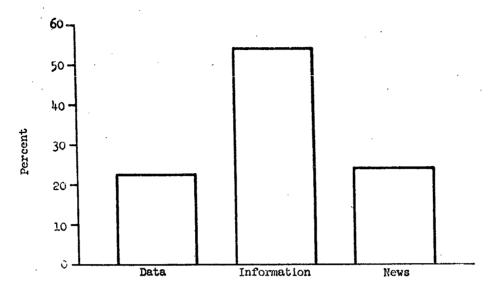


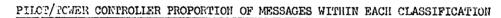
MESSAGE CLASSIFICATION

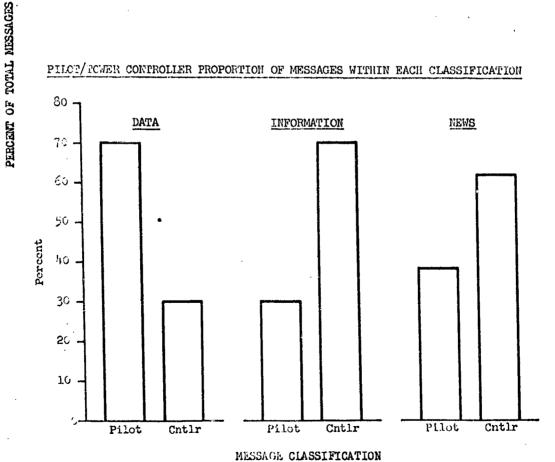
#### 5. DIN Message Classification Proportions by Originator

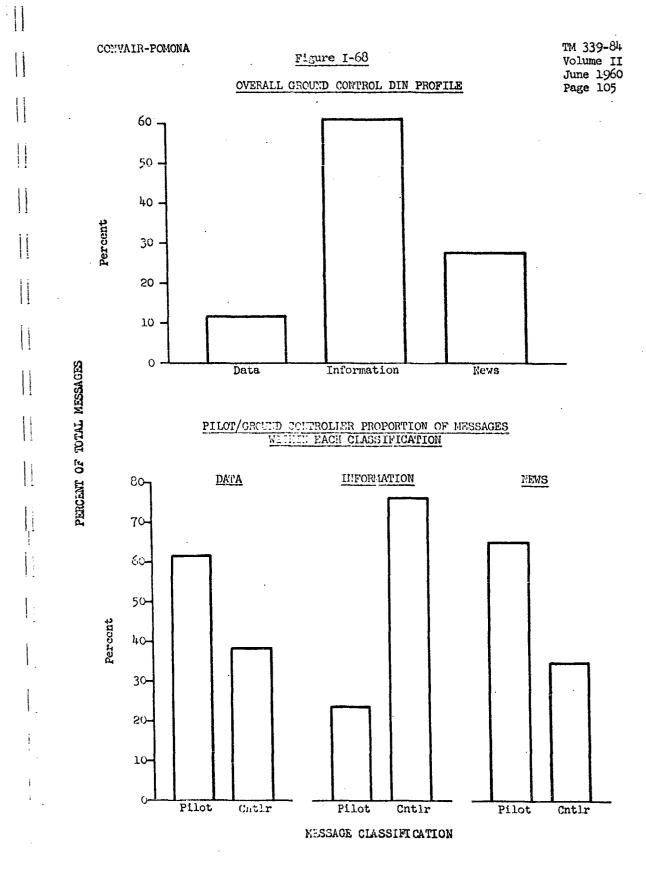
In each of Figures I-67 through I-84 the top chart shows the overall DIN profiles for each facility or position while the bottom chart shows the contribution to each of the DIN percentages made by the pilot and the controller/communicator. For example, Figure I-66 shows that 70% of all messages classified as Data in the Tower sample were originated by pilots, whereas 70% of all messages classified as Information were originated by Tower controllers. Note the sum of the two proportion-of-messages percentages for each classification is 100%.

### OVERALL TOWER DIN PROFILE









Pilot

MESSAGE CLASSIFICATION

Cntlr

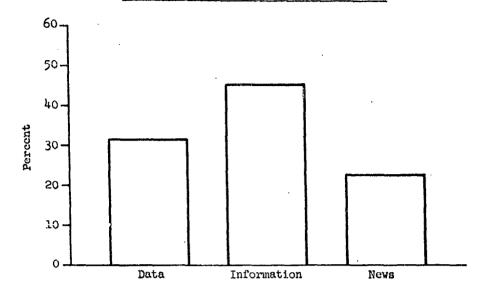
Pilot

Cntlr

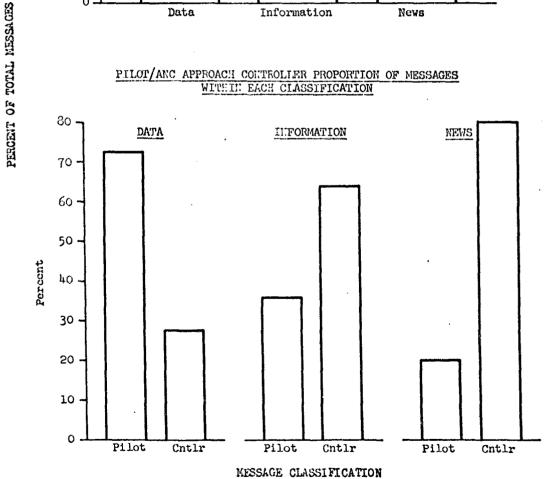
Pilot

Cntlr

#### OVERALL ANC APPROACH CONTROL DIN PROFILE

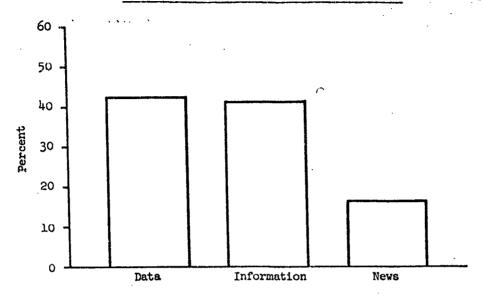


# PILOT/ANC APPROACH CONTROLLER PROPORTION OF MESSAGES WITHIN EACH CLASSIFICATION

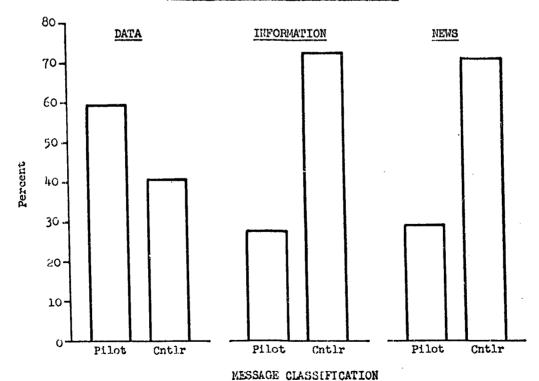


PERCENT OF TOTAL MESSAGES

### OVERALL RADAR APPROACH CONTROL DIN PROFILE



#### PILOT/RADAR APPROACH CONTROLLER PROPORTION OF MESSAGES WITHIN EACH CLASSIFICATION

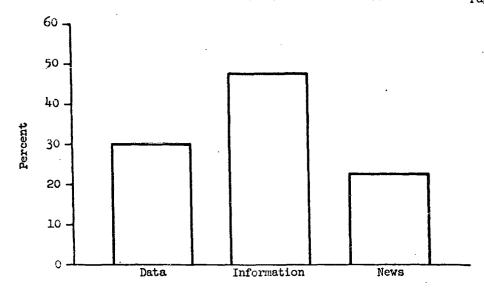


PERCENT OF TOTAL MESSAGES

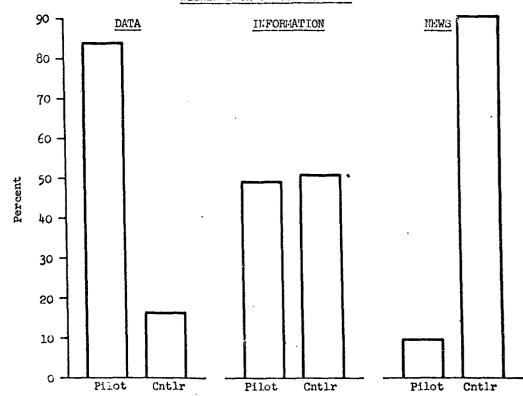
Figure I-72

## OVERALL AND DEPARTURE CONTROL DIN PROFILE

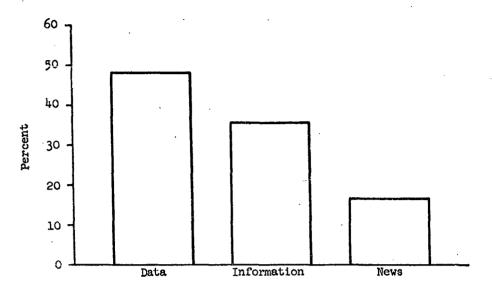
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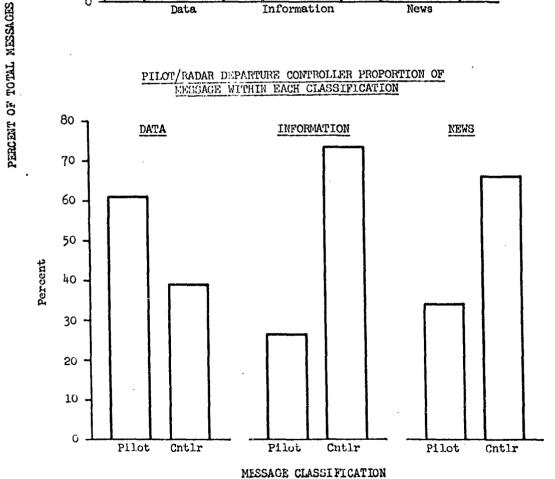
## PILOT/ANC DEPARTURE CONTROLLER PROPORTION OF MESSAGES WITHIN EACH CLASSIFICATION



#### OVERALL RADAR DEPARTURE CONTROL DIN PROFILE

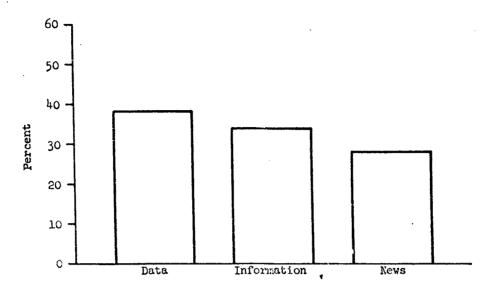


# PILOT/RADAR DEPARTURE CONTROLLER PROPORTION OF EXCHANGE WITHIN EACH CLASSIFICATION



PERCENT OF TOTAL MESSAGES

### OVERALL CENTER DIN PROFILE



# PILOT/CENTER CONTROLLER PROPORTION OF MESSAGES WITHIN EACH CLASSIFICATION

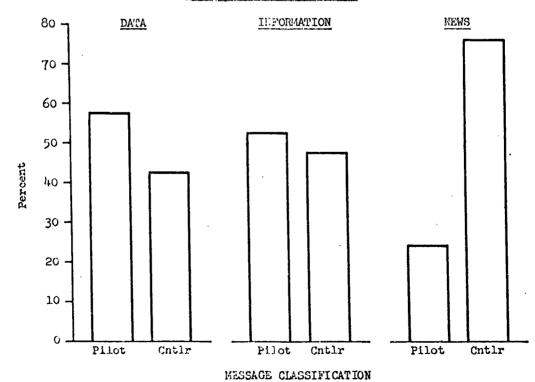
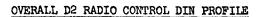
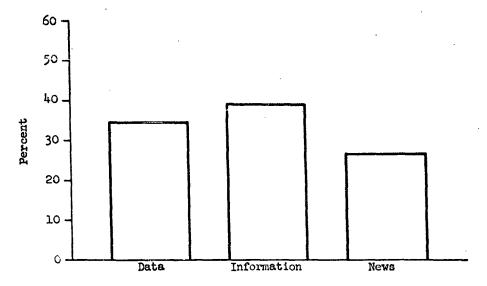


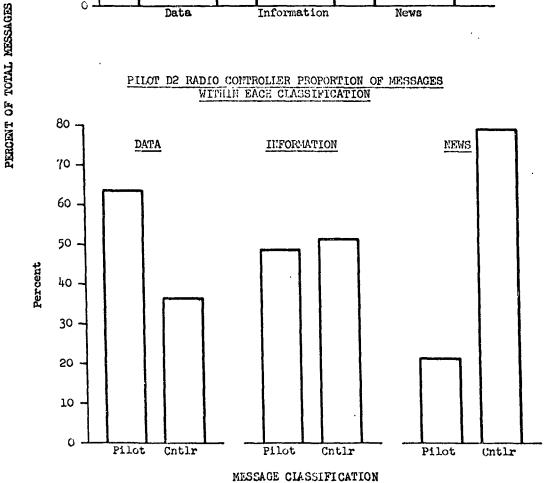
Figure I-75

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## PILOT D2 RADIO CONTROLLER PROPORTION OF MESSAGES WITHIH EACH CLASSIFICATION



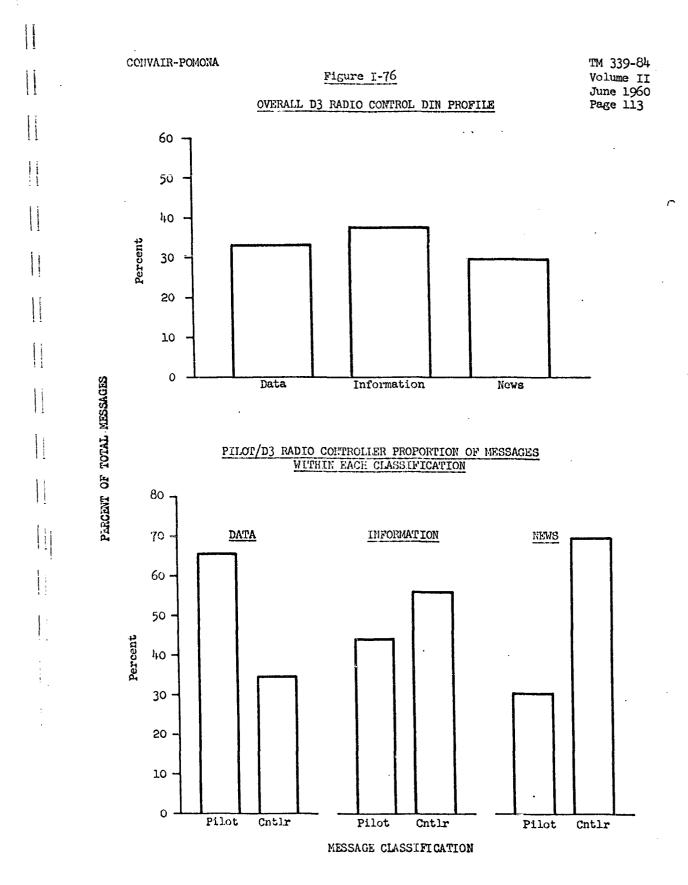
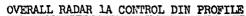
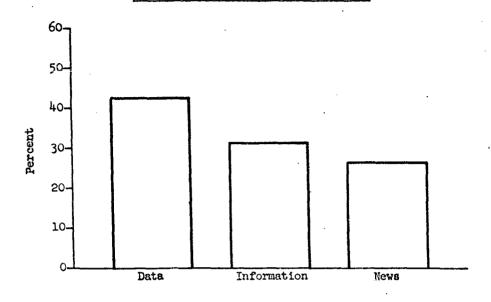


Figure I-77





## PILOT/RADAR LA CONTROLLER PROPORTION OF MESSAGES WITHLE EACH CLASSIFICATION

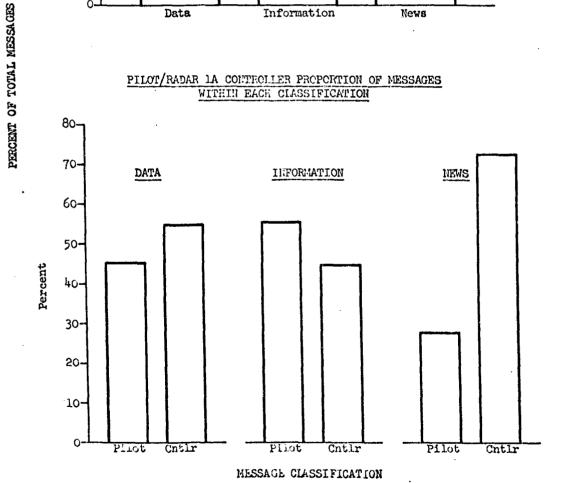
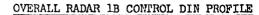
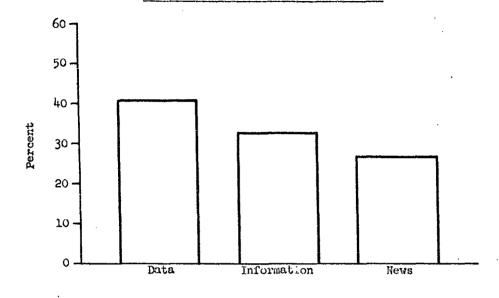
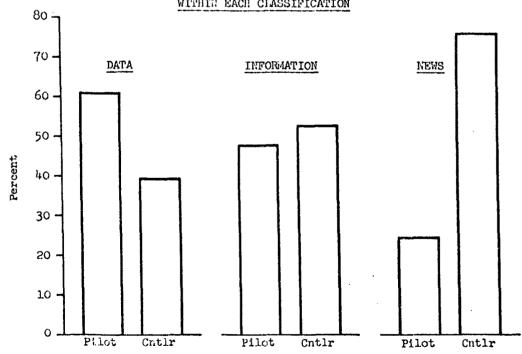


Figure I-78





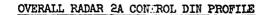
# PILOY/LADAR 1B CONTROLLER PROPORTION OF MESSAGES WITHIN EACH CLASSIFICATION

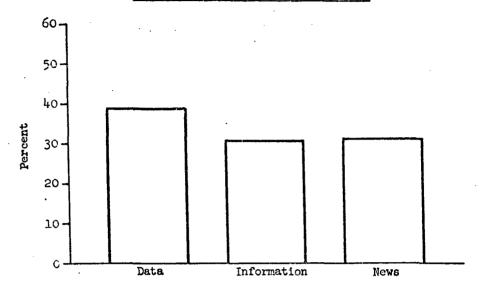


MESSAGE CLASSIFICATION

PERCENT OF TOTAL MESSAGES

Figure I-79





# PILOT/RADAR 2A CONTROLLER PROPORTION OF MESSAGES WITHIN EACH CLASSIFICATION

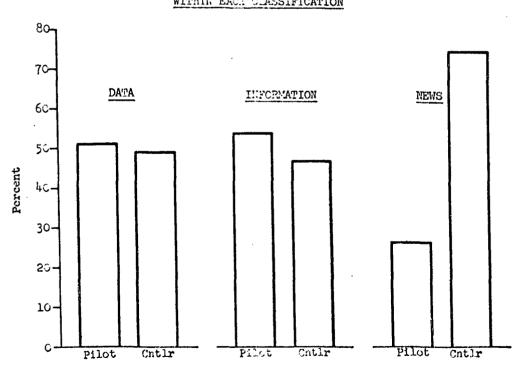
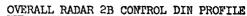
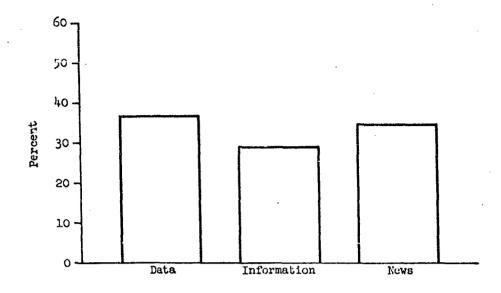


Figure I-80





# PILOT/RADAR 2B CONTROLLER PROPORTION OF MESSAGES WITHIN MACH CLASSIFICATION

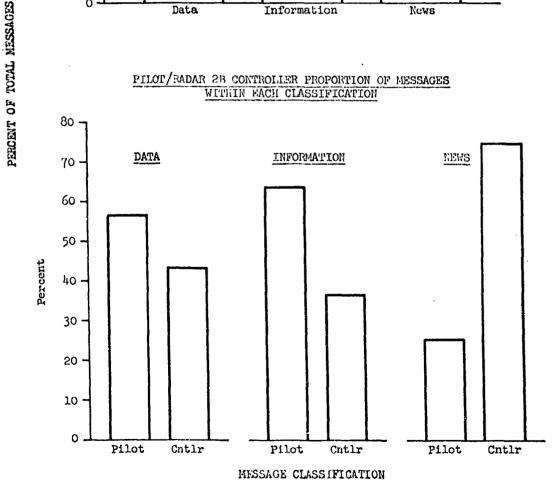
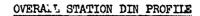
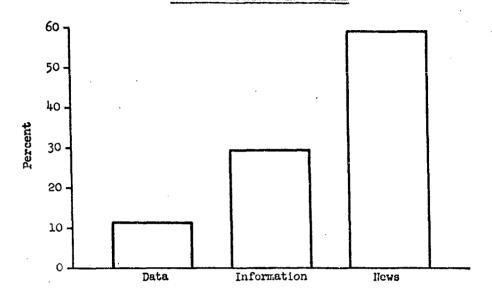
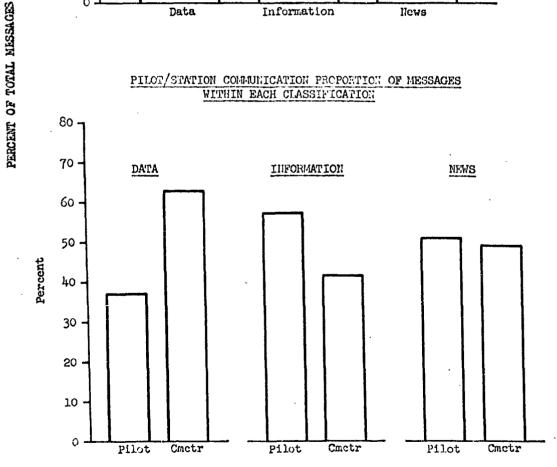


Figure I-81





# PILOT/STATION COMMUNICATION PROPORTION OF MESSAGES WITHIN EACH CLASSIFICATION



MESSAGE CLASSIFICATION

Pilot

Cmetr

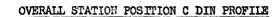
0

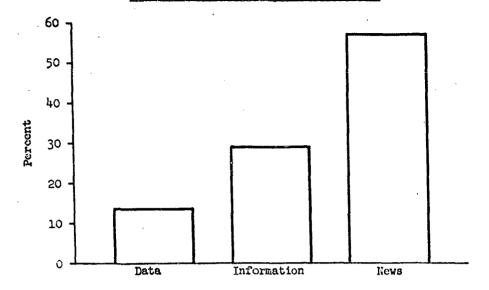
Pilot

Cmetr

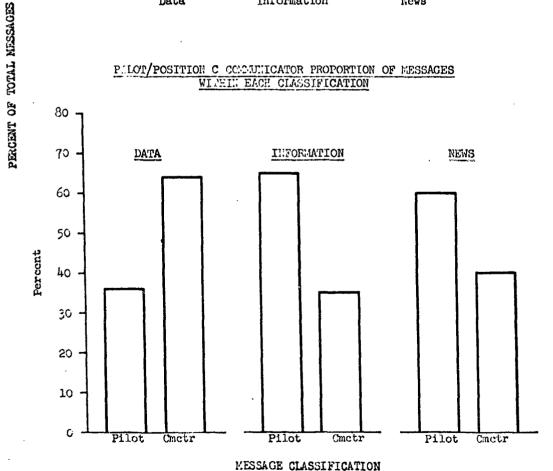
Figure I-83

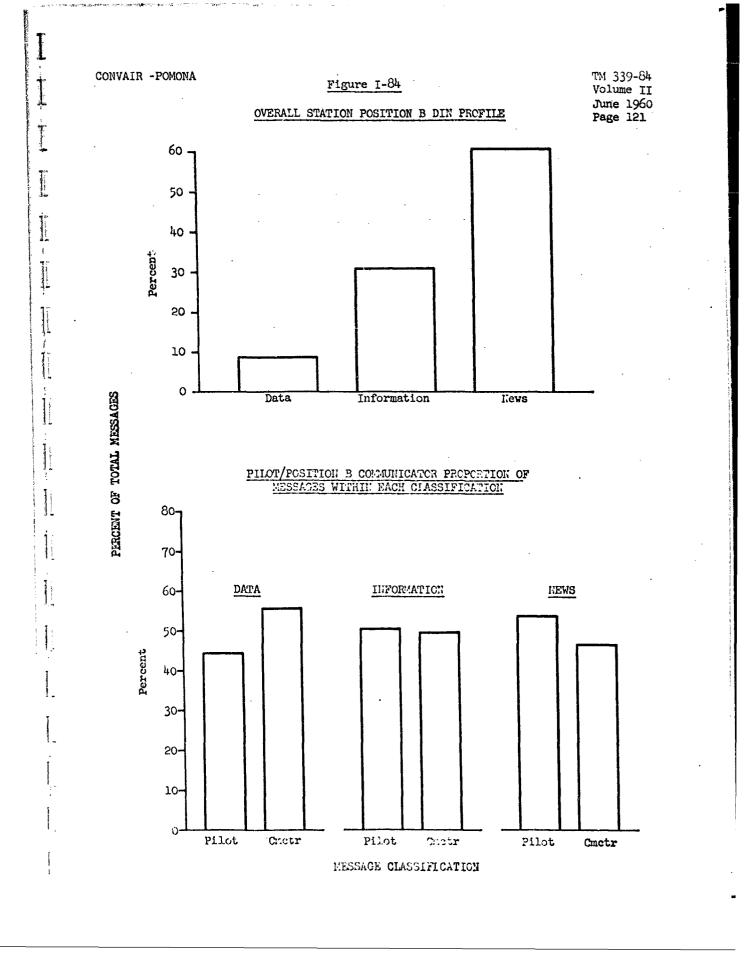
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# PALOT/POSITION C COMMUNICATOR PROPORTION OF MESSAGES WITHIN EACH CLASSIFICATION

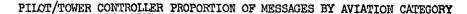




6. DIN Message Classification Proportions by Originator and Aviation Category

The data of the previous cycle are further broken down in Figures I-85 through I-102 to show pilot/controller proportions of messages within each classification by aviation category. The data are given on an overall basis for each facility and by individual position. As before, the sum of the two percentages in each classification breakdown is 100%.

Figure I-85



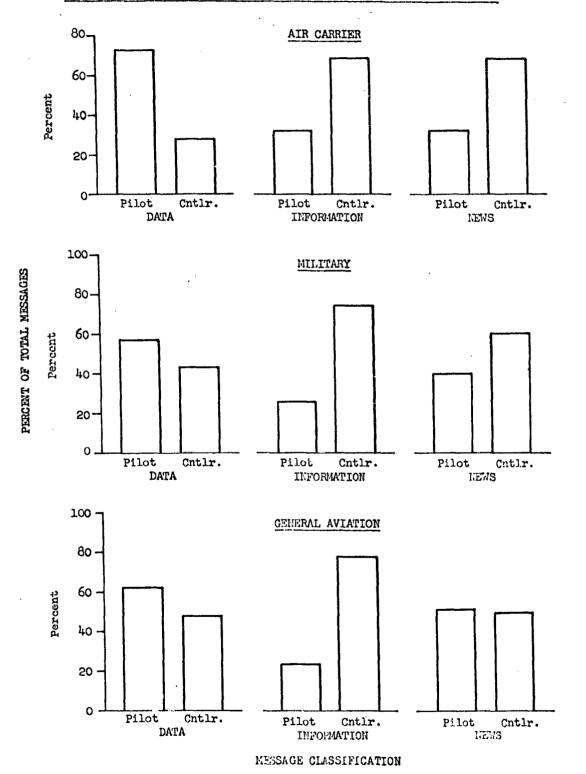
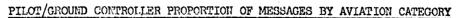
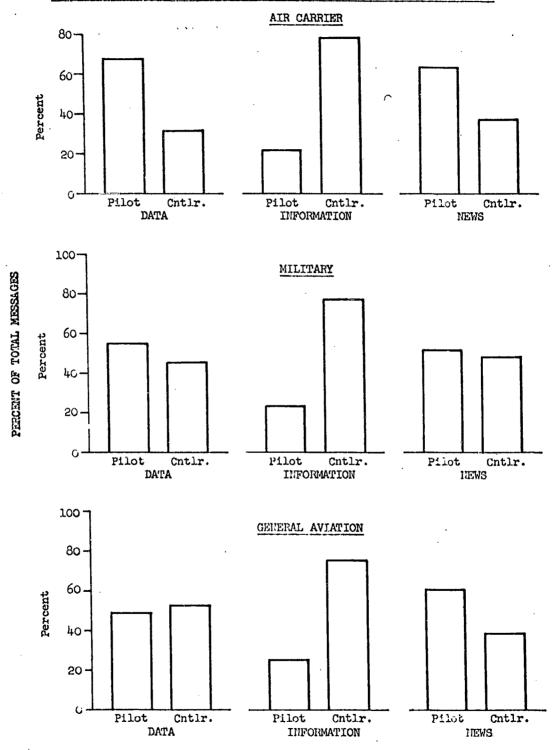
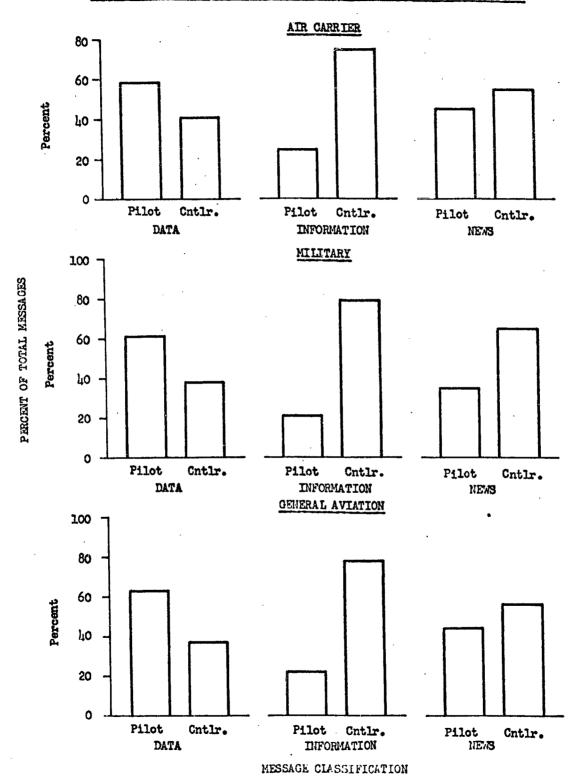


Figure I-86

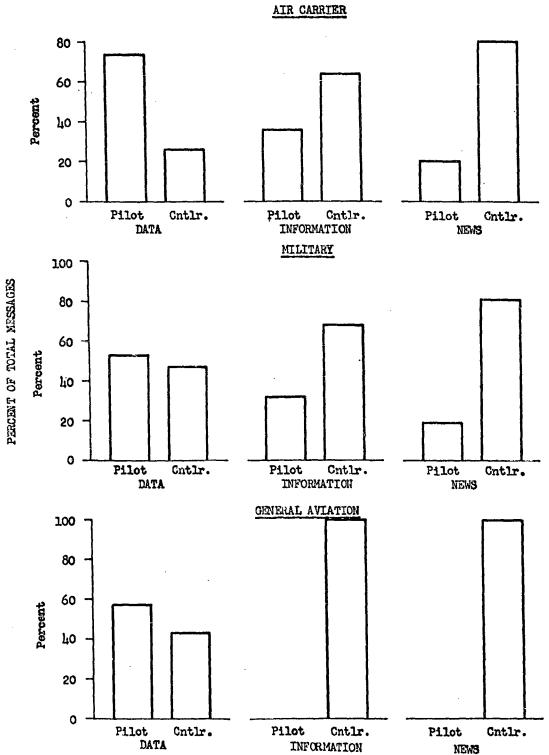




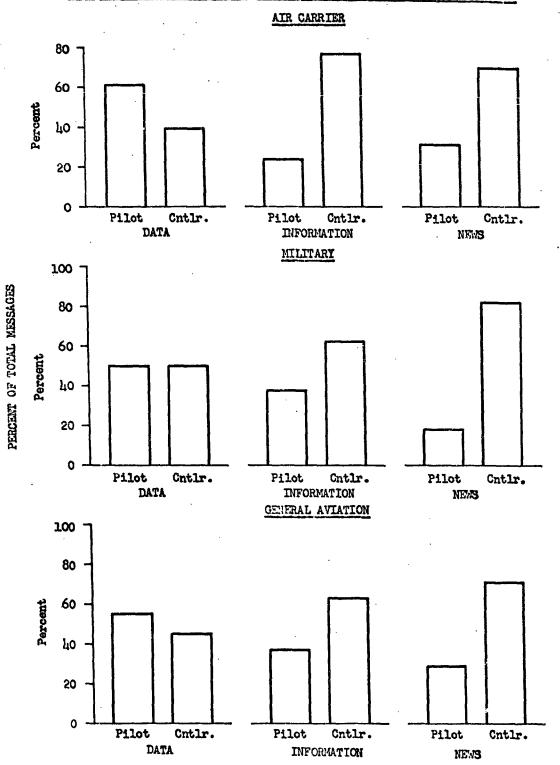
### PILOT/IOCAL CONTROLLER PROPORTION OF MESSAGES BY AVIATION CATEGORY



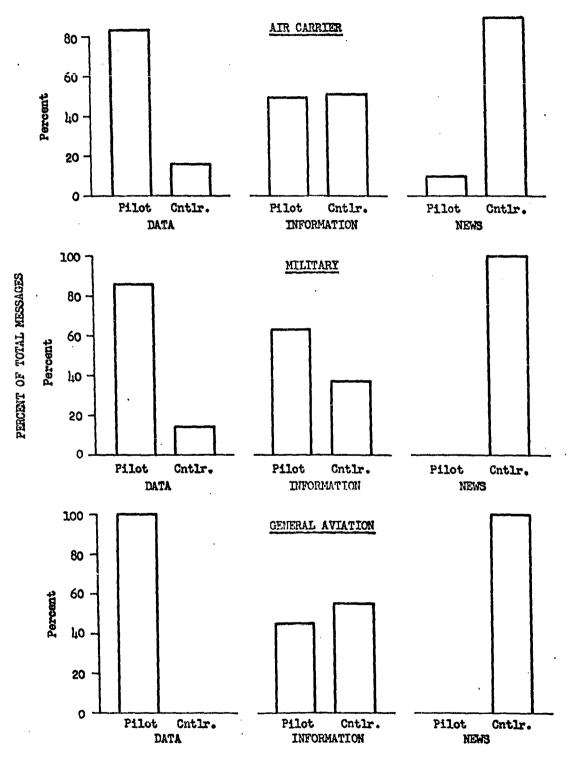
## PILOT/ANC APPROACH CONTROLLER PROPORTION OF MESSAGES BY AVIATION CATEGORY



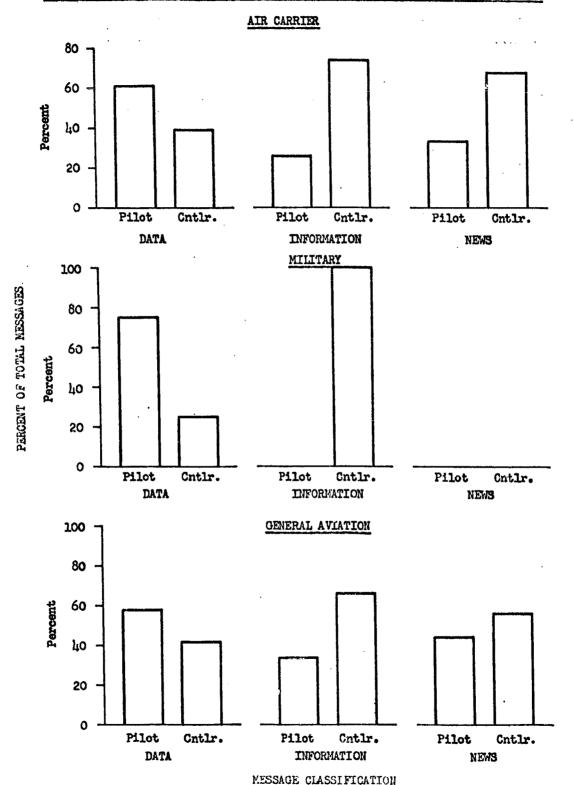
## PILOT/RADAR APPROACH CONTROLLER PROPORTION OF MESSAGES BY ORIGINATOR



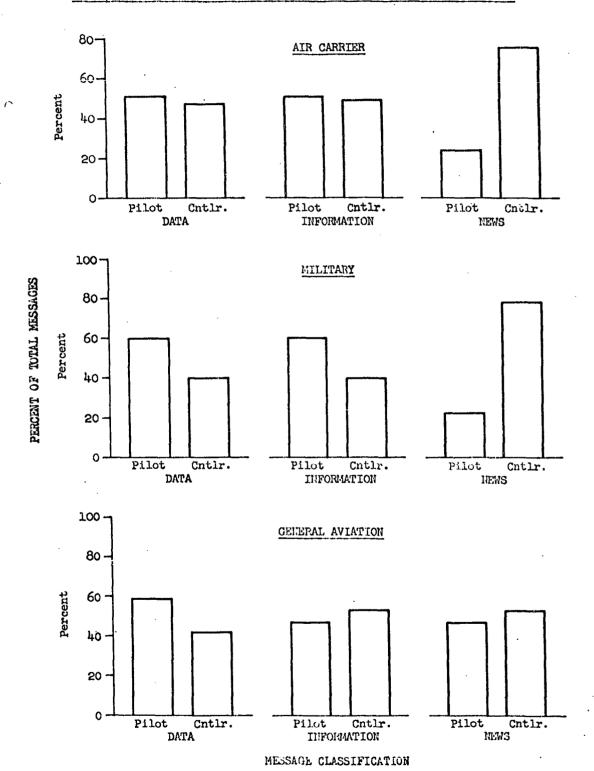
### PIIOT/ANC DEPARTURE CONTROLLER PROPORTION OF MESSAGES BY AVIATION CATEGORY



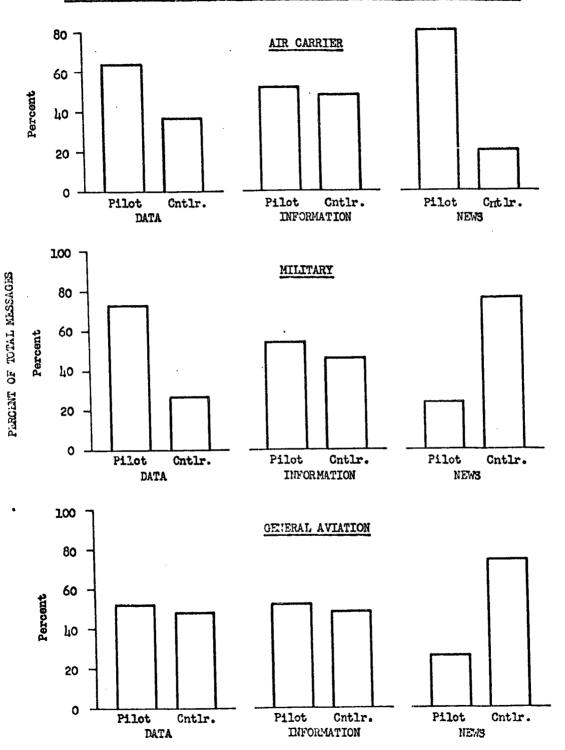
### PILOT/RADAR DEPARTURE CONTROLLER PROPORTION OF MESSAGES BY AVIATION CATEGORY



#### PILOT/CENTER CONTROLLER PROPORTION OF MESSAGES BY AVIATION CATEGORY



### PILOT/D2 RADIO CONTROLLER PROPORTION OF MESSAGES BY AVIATION CATEGORY



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PILOT/D3 RADIO CONTROLLER PROPONTION OF MESSAGES BY AVIATION CATEGORY

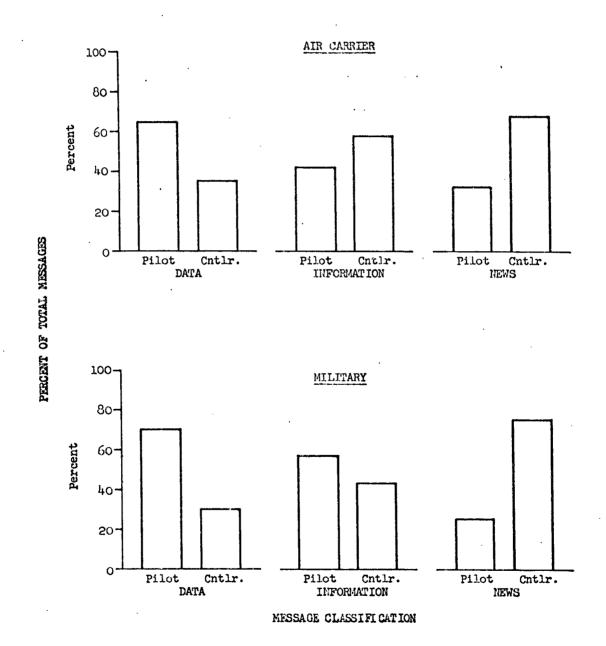
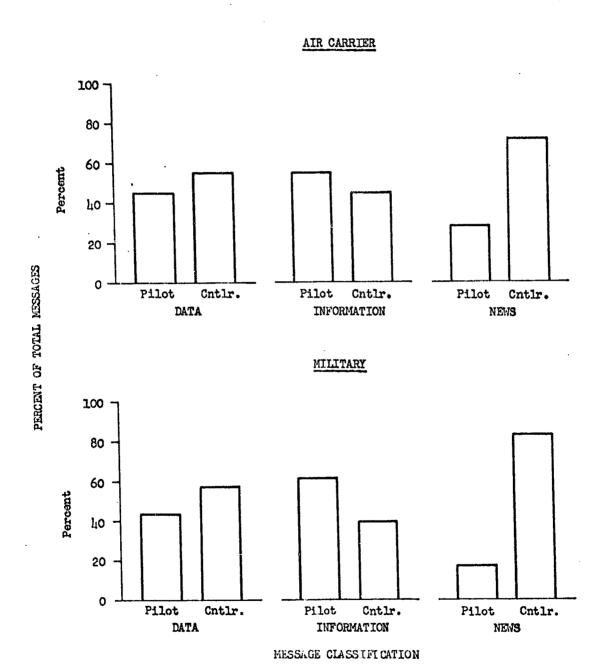
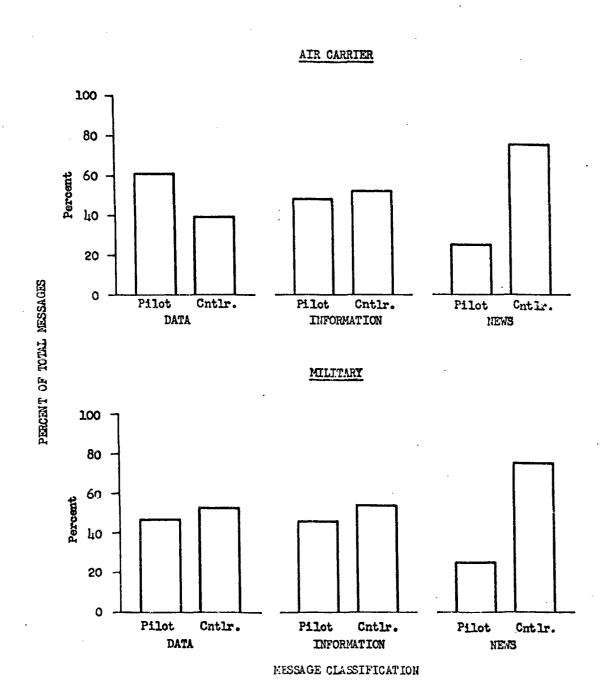


Figure I-95

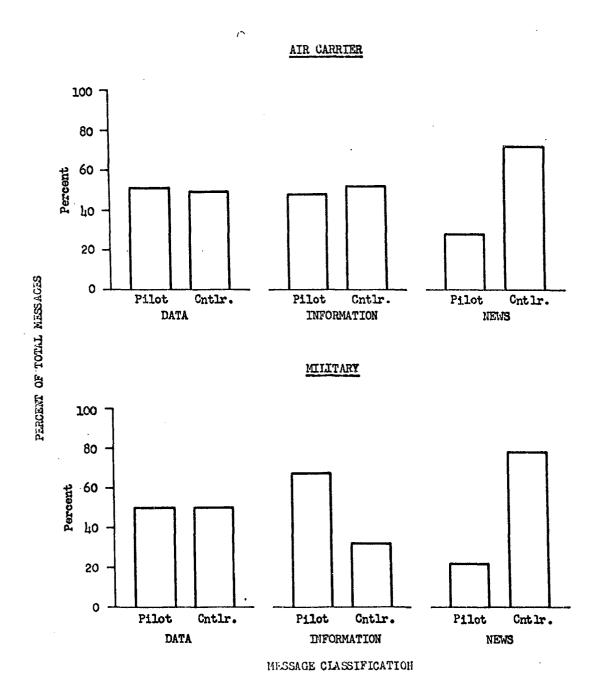
### PILOT/RADAR 1A CONTROLLER PROPORTION OF MESSAGES BY AVIATION CATEGORY



### PILOT/RADAR 1B CONTROLLER PROPORTION OF MESSAGES BY AVIATION CATEGORY



### PILOT/RADAR 2A CONTROLLER PROPORTION OF MESSAGES BY AVIATION CATEGORY





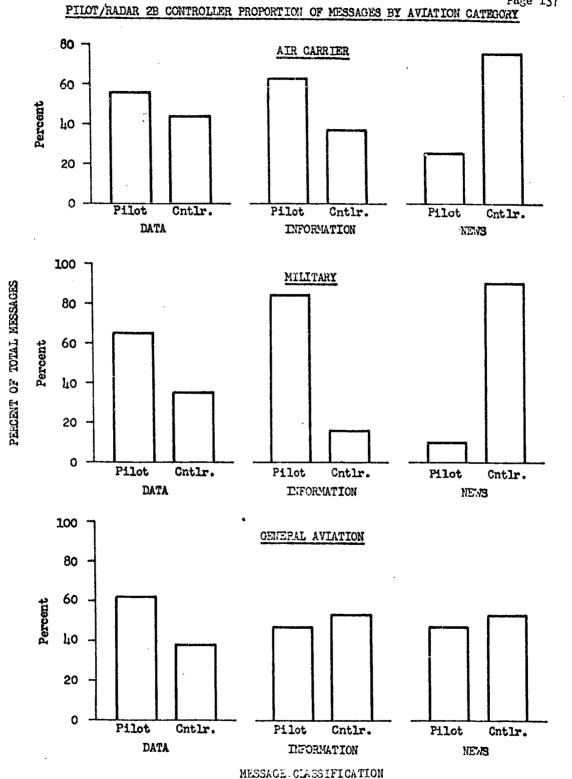
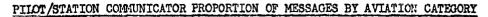
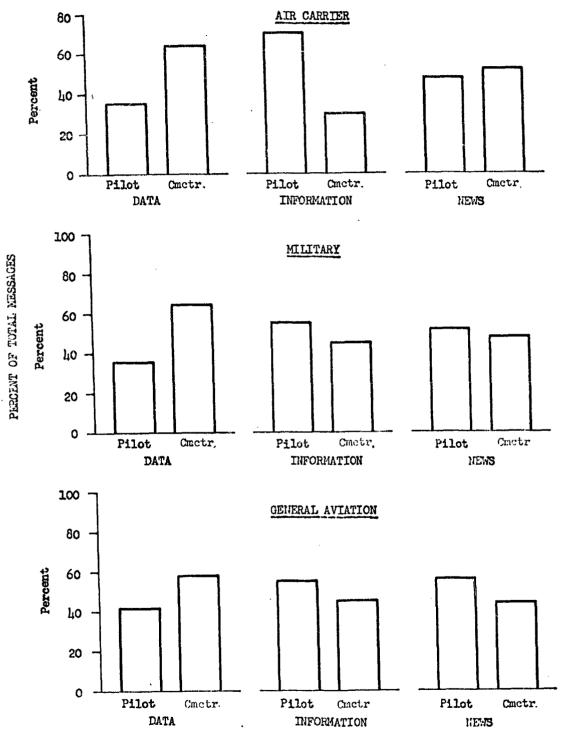


Figure I-99



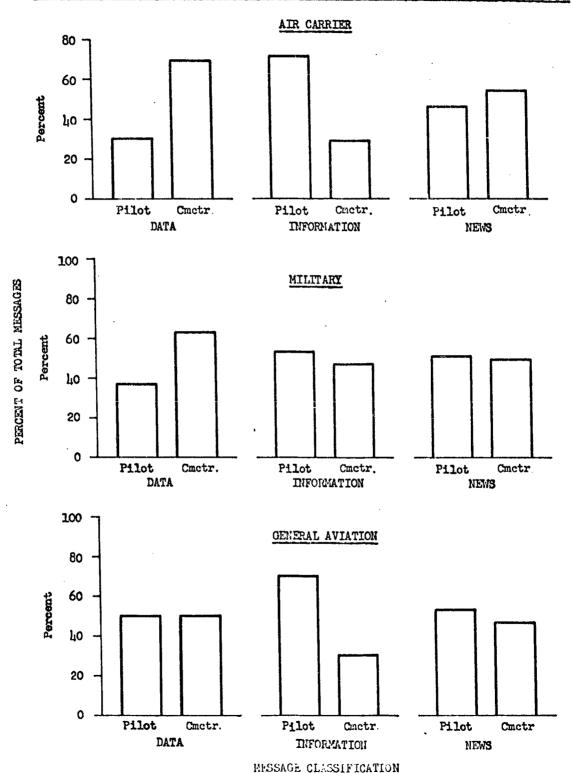


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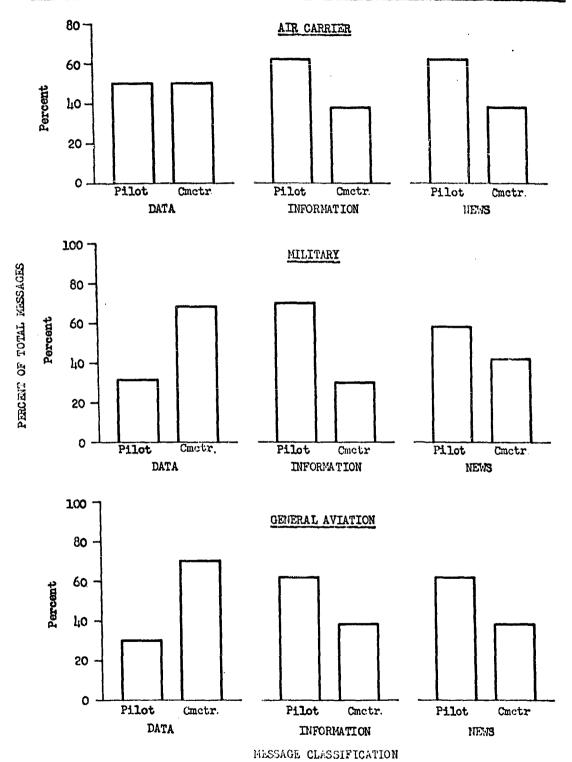
CONVAIR-POMONA

Figure I-100

### PILOT/STATION POSITION D COMMUNICATOR PROPORTION OF MESSAGES BY AVIATION CATEGORY

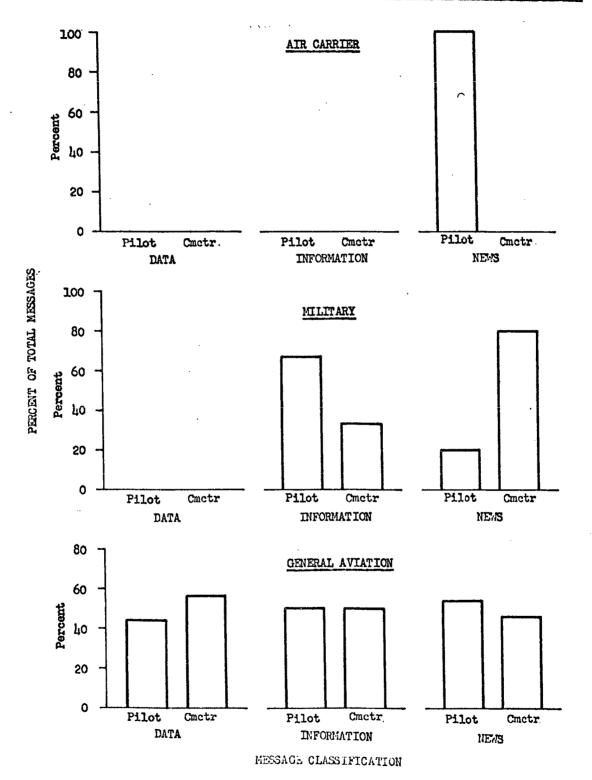


### PILOT/STATION POSITION C COMMUNICATOR PROPORTION OF MESSAGES BY AVIATION CATEGORY



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## PILOT/STATION POSITION B COMMUNICATOR PROPORTION OF MESSAGES BY AVIATION CATEGORY



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## SECTION II

### TIME-RELATED VOICE COMMUNICATIONS MEASURES

Since the time intervals involved in transferring information to air traffic of varying density are clearly necessary in analyzing and describing an ATC voice communications system, considerable effort was devoted to obtaining time-related and traffic density data. These basic data are presented in this section in both tabular and chart form.

### A. TIME-RELATED DATA TABLES

The basic data were obtained by measuring the length of each recorded contact, the number of contacts in a given time interval, and the number of aircraft contacted in a given time interval. (A contact is defined to commence with the initial call-up and to terminate with the final acknowledgment.) A number of measures, normalized with respect to length of sample interval, were then obtained.

An overall view of the totals for the control positions is given in Tables II-1, II-2, and II-3. For these tables the basic time interval was the total-sample time interval. For example, Table II-1 shows that the total Ground Control data sample for 1959 was 10 hours. The statistics are broken down by aviation category, with an overall statistic also given for each measure. The first column shows the percentage of all R/T communications time which was consumed in dealing with each aviation category. It should be noted here that the R/T communications time includes both talking and listening time for the controller (or pilot) in the course of a contact. The remaining columns in these three tables are self-descriptive.

Tables II-4 through II-18 yield a detailed breakdown of the timerelated data by aviation category and with respect to three time intervals: one-half hour, one hour, and two hours. The data and time for each sample are given and the half-hour and one-hour data are presented chronologically within each two-hour sample period. **『神経神典学書書書書の書書書書の歌』には、文には、いに、これには、これに、日本のの歌』には、文には、これには、これに、日本のの歌』には、文には、これには、日本ののでは、日本ののでは、日本ののでは、日本ののでは、日本ののでは、日本ののでは、日本ので** 

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			ITION IONS T		N	UMBER	OF CO	NTACT	S		AVER PER
POSITION AND SAMPLE SIZE	AC	MIL	GA	GV	AC	MI	GA	G₹	TOTAL	AC	MI
Chound Control (10 Mours - 1959)	56.6	13.5	16.5	13.4	673	128	232	224	1257	12.2	15
ROUND CONTROL (4 Hours - 1960)	50.2	6.5	25.8	17.6	327	31	地	137	636	9.6	- 13
LOCAL CONTROL (10 Hours - 1959)	62.5	11.0	26.5		1013	15h	317		1483	8.7	10
LOCAL CONTROL (2 Hours - 1960)	57.7	7.8	34.4		197to	42	227		709	6.7	9
APPROACH CONTROL (ANC) (12 Hours - 1959)	87.8	11.4	0.8		777	69	6		852	12.6	18
APPROACH CONTROL (RADAR) (5 Hours - 1960)	74.6	5.3	21.0		533	32	137		702	11.6	13
DEPARTURE CONTROL (ANC) (12 Hours - 1959)	95.1	3.4	1.5		554	11	5		570	10.0	17
DEPARTURE CONTROL (RADAR) (4 Hours - 1960)	89.5	1.0	9.5		274	3	32		309	10.4	, 13

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Table II-1

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R/T COMMUNICATIONS MEASURES TOTALS

NT.	nerr	OF CO	NTACT	3		erage er veh				NUM	CONT.					E PER (SECON		AV.	
AC	MIL	QA.	GV	TOTAL	AC	MIL			OVERALL	AC	MIL.	GA	TOTAL	AC 1	MIL	GA O	VERALL	AC	M
673	128	232	224	1257	12.2	15.2	10.3	8.6	11.5	277	垣	73	391	29.6	47.6	32.6	32.0	2.13	3.
327	31	nia	137	636	9.6-	13.1	11.5	8.0	9.9	169	11	64	शिर्ष	18.6	36.9	25.3	21.2	1.93	2
<b>1Ö</b> 13	154	317		1483	8-7	10.0	11.7		9.4	261	29	83	373	33.6	53.1	<b>144-8</b>	37.6	3.88	5
<b>11</b> 10	42	227		709	6.7	9.5	7,8		7.2	86	8	46	140	34.0	50.1	38.3	36.6	5.12	5
777	69	6		852	12.6	18.4	16.1		13.1	142	11	5	158	69.0	115.2	19.3	70.6	5.47	6
533	32	137		702	11.6	13.9	12.9		12.0	74	3	20	97	83.6	148.3	88.1	86.5	7.20	10
554	11	5		5 <b>7</b> 0	10.0	17.9	17.4	<b>!</b>	10.3	144	3	2	2 149	38-7	65.6	43.5	39.3	3.85	5 3
274	3	32		309	10.4	11.0	9.5	<b>;</b>	10.4	70	1	. 1	7 78	140.9	32.9	43.4	41.0	3.91	_ 3

Table II-1,

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6.7	9.5	7,8		7.2	86	8	146	- 140	34.0	50.1	38.3	36.6	5.12	5.25	4.93	5.06
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Table I

CENTER

R/T COMMUNICATIONS

		MPOSITIONS		NI	umber o	P CONT	ACTS	AV	ERA
POSITION AND SAMPLE SIZE	AC	MII.	GA	AC	MIL	GA	TOTAL	AC	MI
D2 RADIO CONTROL (14 Hours - 1959)	83.0	12.2	4-8	598	61	છ	682	18.2	2
D2 RADIO CONTROL (4 Hours - 1960)	86.3	11.6	2.1	361	33	5	399	16.7	2
D3 RADIO CONTROL (22 Hours - 1959)	72.7	27.2	***	253	37	1940	290	17.1	14
D3 RADIO CONTROL (3 Hours - 1960)	65.4	8•7	25.9	115	15	19	149	14.7	3
RADAR 1A CONTROL (10 Hours - 1959)	89.1	10.9	m 4p	128	<b>1</b> ]t		142	21.2	;
RADAR 1B CONTROL (10 Hours - 1959)	97.2	2.8		529	15		544	17.0	:
RADAR 1B CONTROL (2 Hours - 1960)	76.6	15.6	7.7	125	16	12	153	15.4	. ;
RADAR 2A CONTROL (10 Hours - 1959)	75.1	24.8		117	51		168	24.3	;
RADAR 2B CONTROL (8 Hours - 1959)	80 <b>-</b> 4	13.3	6.3	172	26	7	205	24.0	



Table II-2

CENTER

R/T COMMUNICATIONS MEASURES TOTALS

OF IME	NU	mber o	P CONTA		ΥĀ	PER (SE	CONTAC: PLANE CONDS)	TIES	NU	BER OF				verage Er plan (Se		ACTED
GA	AC	MIL	GA	TOTAL	AC	MIL	GA	OVERALL	AC	MIL	GA	TOTAL	AC	HIL	GA	OVERALL
4-8	598	61	23	682	18.2	26.2	27.3	19.2	123	19	6	148	88.5	84-2	104.5	88.6
2.1	361	33	5	399	16.7	24.5	æ.6	17.5	59	11	3	73	102.0	73.5	49.3	95•5
	253	37		290	17.1	IJ.8		20.5	63	11		74	68.7	147.4		80 <b>-</b> 4
25.9	115	<b>1</b> 5	19	149	14.7	15.0	35.1	17.3	27	3	2	32	62.4	75.2	333.9	80.6
	128	14	-	142	21.2	23.7		21.5	33	2		35	82.4	165.6		87.1
	529	15		5/1/4	17.0	17.1		17.0	79	3		82	113.6	85.7		112.6
7-7	125	16	12	153	15.4	24.5	16.2	16.4	25	14	1	30	76.9	98.2	194.4	83.7
	117	51		168	24.3	18.5		22.5	30	14	••	孙	94.9	67.2		86.1
6.3	172	26	7	205	211.0	26.2	16.0	25.1	37	6	3	46	111.7	113.7	107.2	111.7
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Table II-2

### MOUNICATIONS MEASURES TOTALS

	PER	PLANE	wik.			ER OF	PLAN	<b>PS</b>	1977	er Plai (S	CONDS)	ICTED	CONT	CTS P	ER PLAN	B
AC M			OVERALL	A	C	MIL	-GA-	TOTAL	, AC	) MIL	GA .	OVERALL	AC -	Mr_	GA ON	PIAL
18.2 2	6.2	27.3	19.2	12	3	19	6	<b>ภา</b> ย	88.5	84.2	104.5	88.6	4.86	3:21	3.83	4.61
16.7 2	24.5	29.6	17.5	1-	59	11	-3	73	102.0	73.5	1,9.3	95•5	6.12	3.00	1.67	5-4
17.1	<b>3.</b> 8		20.5		63	11	-	74	68.	1 147-4		80.4	1,705	3.36	W.	3.9
14.7	L5.0	35.1	17.3		2 <b>7</b>	3	2	32-	62.1	ı- 75 <b>.</b> 2	333.9	80.6	և. 26	5.00	9.50	- և.6
21.2	23.7		21.5		<b>33</b> ·	2	1 <b></b> 1	35	82.	165.6	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	87.1	3-88	7-00		4.0
17.0	17.1		17.0	**************************************	79	3	•••	82	113.0	6 85.7		112.6	6.70	5.00		6.6
15.4	24.5	16.2	16.4		25	14	1	30	76.	9 98.2	194•4	83.7	5.00	4.00	12.00	5.1
24.3	18.5	***	22.5		30	<b>, 1</b> 4	••	种	94.	9 67.2		86.1	3.90	3.64		<b>3.8</b>
24.0	26.2	16.0	25.1		37	. 6	3	146	111.	7 113.7	107.2	111.7	4.65	4.33	2.33	4.1
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Table II-

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R/T COMMUNICATIONS M

		ompositi Nication		N	umber (	OF CONT	ACTS	AV	erage Per (Se
POSITION AND SAMPLE SIZE	AC	MIL	GA	AC	MIL	GA	TOTAL	AC	MIL
POSITION D (20 Hours - 1959)	27.5	67.0	5•5	151	391	27	569	34-4	32.4
POSITION C (18 Hours - 1959)	12.6	60.8	<b>26.</b> 6	29	64	38	131	24.6	53.7
POSITION B (24 Hours - 1959)	0.6	3.7	95₄7	2	5	100	107	15.6	<b>36.</b> 8
		70.7							



Table II-3

STATION

B/T COMMUNICATIONS MEASURES TOTALS

	2.17	JMBER O		A COTTS	ĀVI	PER	CONTAC PLANE CONDS)	TIE	NUM	EER OF		nes		erage Ir Plan (Se		ACTED	
<del>-</del>	AC	MIL	GA.	TOTAL	AC	MIL	GA	OVERALL	AC	MEL	GA	TOTAL	AC	ML		OVERALL	
	151	391	27	569		32.4		33.2	46	108	19	173	112.9	117.3	55.2	109.3	3
	29	6l <sub>1</sub>	38	131	24.6	53.7	39.5	ц3 <b>.</b> 2	19	29	27	75	37.6	118.5	55.6	75.4	1
,	2	5	100	107	15.6	36.8	47.7	<b>46.6</b>	2	3	75	80	15.6	61.4	63.6	62.3	1



Table II-3
STATION

## COMMUNICATIONS MEASURES TOTALS

	AV	PE	CONTAC PLANE CONDS)		NU	BER OF	P PLAI			Terage Er Plan (Se		ACTED			MBER C ER PLA	
PAL	AC	MIL	GA	OVERALL	AC	MIL	GA	TOTAL	AC	MIL		OVERALL	AC	MIL		VERALL
69	34-4	32.4	38.8	33•2	716	108	19	1.73	112.9	117.3	55.2	109.3	3.28	3.62	1.42	3.29
31	24.6	53.7	39.5	цз.2	1.9	29	27	75	37.6	118.5	55.6	75•4	1.53	2. 21	1.la	1.75
.07	15.6	36.8	47.7	46.6	2	3	75	80	15.6	61.4	63.6	62.3	1.00	1.67	1.33	1.34
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Table II-4

R/T COLDINICATIONS URASUMES FOR GROUND CONTROL POSITION

	DATE ON THE	30 Min. Intervals 15 May 1959 (0800-1000)	20 May 1959 (11,00-1600)	23 %ay 1959 (0000-0200)	23 May 1959 (11,00-1600)	23 May 1959 (1600-1800)	27 Feb. 1960 (1400-1600)	27 Feb. 1960 (1600-1800
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1	TOTAL	25828	77 73 74 75	የዩድጵ	60 80 87 148	22 22 16	65 80 86 86	75 78 72 72
1 .	οų	12.7 14.9 15.2 16.8	11111 2001	25.27 27.27 27.27 27.27 27.27 27.27	201 201 201 201 201	10.5 13.0 9.2 17.8	0,00 0 6-4 mm	11.0 15.0 8.3 1.0
AVE PVR VEII	MET	19.6 18.3 9.3 16.4	7 8 8 1 6 3 1 1 2 2	1111	17.0 17.4 16.2 21.1	16.3 12.0 16.6 57.5	26.5 13.5 13.9	15.9 6.8 6.8
AVPLEACES CO WELLTCLES TO POSTON	S.A.	12.01	10.01 8.01 9.04	17.2	8.01 8.01 8.01	15.00 10.00 10.00	0.01.09	25.57 25.11 25.01
MININ I	CV	7.5 8.7 8.1 10.7	2,14 0,74 0,4 0,4 0,4	8.7 8.7 8.7 8.7	11. 8.6 7.0	o o d u u u u	08.80 0.04.0	9 6 7.00
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Table II-4 (continued)

N/T COLLUNICAPIONS MEASURES FOR GROUND CONTROL POSITION

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TIND INTERVAL	OVERALL	13.7	10.9	12.0	10.0	1.11	9.9 5.0	8.9	13.3	10.6	11.2	10.6	11.3	9.5
AGE COMPACE TEMS CLE FITHIN INTERVAL (SECONES)	ΩΛ	8.3	7.0	8 % %	6.5 6.2 7.0	9.31	7.5	6,00 1.4	9.1	7.7	7.9	<b>1.6</b>	10.0	8-7-8
AVERAGE CO Tr. ELLINE VELLES	G.A.	12,2	10.5 8.8	12.4	10.5 9.3	10.0 8.6	10.8	12.1	13.0	9.5	12.	6•6	9.2	12.8
AVA Ear Vee	HEN	18.9 11.4	7.8		17.3	15.4 21.7	24.8 13.7	7.51	17.11	10°1	1	17.6	18.2	16.7
P1	S.	13.9	12.5	12.2	10.7	2.1 1.8 1.8	0,0 0 α	8 0 8 0	7-7-	11.9	12.5	10.3	11.6	8.9
T.S.	TOTAL	151 921	152	96 22	1160 135	156 91	145	160	310	307	118	275	247	372
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REGADA	HI.	27 140	7-89	11	ភភ	01 8	<b>4</b> 4	ထထ	29	15	ł	58	18	15
	A.C.	76 63	33	87	69	코 O크	72	82	139	172	8	377	13,	150
E L	GV	9 17	® Ħ	g g	ន្តន	913 81	76 16	123	ដ	ខ្ព	8	ន	13	9 67
TION	GA	ਮੌੜ	26.20	<b>ا</b> ه	ដដ	22.9	ಜಜ	30	큐	ະສ	N	ส	ភ	ដូន
% COMPOSITION COMMUNICATIONS	C PIL GA (	22	ωω	11	ዚ የተ	671	7	ろせ	23	w	i	17	12	ည်းက
Scool	VC	다 다	88	82	ਕੋਟੀ	63 141	54 84 84	56 55	64	62	. 92	22	፠	<sup>1</sup> 45
The Spini	PER INTERVAL	57 62	16 17	29 8	445	18 30	39 45	51 40	09	779	Ą	1,3	017	2 <sup>†</sup>
	DATE AND TIME	1 Hr. Intervals 15 Kay 1959 (0800-1000)	20 May 1959 (11,00-1600)	23 May 1959 (0000-0200)	23 May 1959 (11,00-1600)	23 May 1959 (1600–1800)	27 Feb. 1960 (1400-1600)	27 Feb. 1960 (1600-1900)	2 Hr. Intervals	20 May 1959	23 May 1959	23 May 1959	23 May 1959	27 Feb. 1960 27 Feb. 1960

Table II-4 (continued)

R/T CCHAUNICATIONS HEASURES FOR CROUND CONTROL POSITION

											-55	y=C-1		AOTO									<i></i>			
ONTACES WITHIN	OVERUNIA	2.27	2.71	1.95	2.63	2.52	12°	1.89	ਲੋਂ ਜ	1,25	1.33	2,35	0 0 0	2,50	2,78	2.39	2 86 87	10°T	다. 6천.	1.75	نځ اخ		년 6 년 6	3 ត	2,08	
UMBRE OF CONTACTED INTERCAL	3	1.33	38	1,33	3.83	2,67	8	2,00	8	ļ	1	\$. \$. \$.	200	300	33	1.6%	3-57	8	1.57	88	4 0 181		8 5	8 ! ! !	2.25	
	NET.	3.25	2,7	8	1.30	88	3 3 3 4 7	1	1	1	į	1,67	8	28 28	5	88	2,33	1.00	8 H		3 6	3	86	38	8	
AVER PER	VC	2.20	2,15	100	2.50	2,35	2.83 83	88		1.25	1,33	2.25	1.95	2.31 2.13		2.67	2.54	8	1.45	8,6	1.02	-	1,30	4, o	2.15	
AVERAGE TOTAL TIME PER PLANE CONTACTED MITHIN INTERVAL (SECONDS)	OVERALL	33.0	33.9	38.52	28.2	28.2	25.2 37.0	(	22.7	18.0	17.9	211.5	29.0	25 32 32 30		. 29•33 	27.3	36.1	15.4	18.3		٠ <u>٠</u>	18.4	8 8 8 8	18.3	
THING PA	υV	16.9	7.8	24.9 2.13	30.6	28.9	28°9		22.3	1 1	1	31.8	33.1	23.68 8.68		23 25 25 25 25	30.2	20.1	17.2	ਂ ਹ	ਰ ਹ	21.4	Q.	27.1	8 8 8 9 9 9	
CONTACTION MITHIN (SECONDS)	MI	63.5	30.	13.r 19.1		33°h	400	) }	1	<b>;</b> }	1	28-1	52,1	တ္ဆီ လ လူ ၀		ر د د	7,00 7,00 7,00	7,77 7,8	19.6	39.8	26.8	35.4	17.9	63.6	φ. φ. φ.	
CONT	Ş	0.80	32.0	35 37 37 37 37		2,0	\$ 5 12 12 13 13 13 13 13 13 13 13 13 13 13 13 14 14 14 14 14 14 14 14 14 14 14 14 14	1	၀ လ လ	ο α γα ν τ	17.9	6,6	22.5	22.6	2	29.3	31.62	37. 27. 20.	14.0	15.3	13.5	16.5	19.8	27.7	17.6 17.9	
PLANTS	TOTAT.	6	วส	48		27	18;	<u></u>	19	73	~ ~	` ;	3 %	, 483	έτ	23	33	180	22	- en	98 8	36	73	18	8,8	
1	LNT	,	~ r-	· ο ·	•	9 °	<b>Λ</b> Φ1	v	~	rł	8 1	ـ ا	υt	000	N	٣	m t	~ _	į	‡ o	,ដ	ដ	4	- ω	검	-
NUFER OF CONTACTED	Z	-	.; c	- 0	1	w.r	-1 <i>i</i> -1 :	8	1	1	<b>5</b> 1	•	، ب	ኅጥ	~	Н	m	س رــ	i -	٦ ٨	1 (1)	ന	o	<b>3</b> H	H 0	ا د
Þ Ö	Ç	3	5,5	56.5	3	18 81	នន	77	17	18	ထဂ	<b>^</b> }	ဍ 8	, <b>4</b> , 2	15	19	17	44	> {	8 8	170	8	Č	Ç 61	366	2
		30 min. Intervals	15 Nay 1959	(mations)		20 May 1959	(0091-0071)		23 May 1959	(0000-0500)		,	23 May 1959	(11,00-1600)		23 May 1050	(1600-1800)			27 Feb. 1960	(T#00-T00)		1	27 Feb. 1900		

Table II-1 (continued)

B/T COMMINICATIONS MEACURES FOR GROUND COMMEND POSITION

		NUMBER OF PLANES CONTACTED WITHIN THERVAL	ER OF PLANES ACTED WITHIN INTERVAL	ANES	AVAR GON	WINGE POPAL PERSONAL CONTACTOR (SECONDS)	AVARACE TOTAL TEES PET PLATE COSTACTED WITHING INVERTAL (SECONDS)	: PM: PLAME INTERVAL )	AVE	5 m m	UMBER OF CONTACTS CONTACTED WINHIN INTERVAL	WITHIN
TATE AND TIME	70	MIL	GA	TACIAL	AC	7 <u>1.</u> :	υď	OVERALL	AC	MIL	S.A	OVERTALLL
	32	200	ន្ទន	50 46	33.2 36.5	63 50.03 .03	30.6	33.3	85.4 833	3.37	8.50 8.50	2.56 2.67
20 May 1959 (1400-1600)	23	# M	છ ટા	64 60 74	30.9	13.6 35.1	40.6 35.4	31.1	2.68 2.35	2.67	3.87	2.79 2.80
23 May 1959 (0000-0200)	32	1 1	a i	<del>1</del> 6.1	25.2 17.9	1 1	30.9	25.4	2.06	1 1	2.50	2.09
23 May 1959 (1400-1600)	37	οn	64	52 43 8	22.9	1,0.2 50.4	36.2	27.1 20.2	41.00 41.00	8.33 80 80	*** ***	2.3 62 62
23 %ay 1959 (1600-1800)	32	44	(O Ø)	4. 2.7	33.9	38.5 4.84	24.8 29.0	33.1	9.94 40.03	8.50 8.50	2.50	2.83
27 Feb. 1960 (1400-1600)	24	014	22 23	988 88	15.0	49.6 37.6	20.5	17.8	1.67	2.75	2.35	1.76
27 Fub. 1950 (1600-1800)	7 77	നന	11	6,55 62	24.9	33.1 16.8	23.1	25.0 20.8	2.20	2.67	2.20	1.98 2.23
2 Hr. Intervals 15 May 1959	59	17	80	×	34.7	56.9	29.2	37.5	2.36	э. В	2.25	3.23
20 May 1959	%	2	80	93	31.0	22.8	37.5	31.8	2.61	2.14	3.95	3.30
23 May 1959	42	1	α	†;†	23.8	1 1	30.9	24.1	1.90	<u> </u>	2.50	2.68
23 %ay 1959	79	10	17	75	23.9	4.64	35.5	28.8	2.31	2.80	3.60	3.02
23 May 1959	947	2	77	57	33.9	8°94	27.2	33.0	2.51	2.57	3.00	3.69
27 Feb. 1960	37	9	39	132	15.3	9.14	23.7	19.0	1.72	2.50	2.23	1.91
27 Feb. 1960	82	3	25	112	22.2	31.2	27.7	23.8	2.16	3.20	2.16	2.21

Table II-5

R/T CONTUNICATIONS NEASURES FOR LOCAL CONTROL POSITION

·					YOU	rane 1T	rage 150
	OVERALL	8 8 8 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	9 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	7.1 8.3 6.1 12.0	00 00 8 10 00 8	1001 1001 1001 1001 1001	8.1 7.1 8.4 5.9
1 7-	G.A.	11.39.3	8 1111 5 1 1 2 5	7.11	2001 1009 1009	22 23 20 20 20 20 20 20 20 20 20 20 20 20 20	4 6 6 6 6
AVERAGE PLANE	MIL	0.000	86.3 6.3 1.3	16.8	φου νωση	19.1	31.7
Xiari	AC.	8.3 8.4 1.1 8.6	88.79 40.47	12°57	100r 1700	10.00 10.00	7.7 7.7 7.7 7.4
51	TOTAL	125 1125 78	11.2 11.8 87	988 1198 1198	811 82 19	% £63.6 \$4	153 140 174 242
OF CONTACTS	CA	84 % <b>9</b> 8	% ଅଅଘ%	۳۱۱۱	12221	444°	4882
וס הויכאנטו דד פייי	Mar	~ H H H ~	nun I	1 9 1	ឧដជង	<sup>~</sup> 귀유	133 17
4	AC	75 <del>25 75</del>	75 92 10 10	62 13 10	16 78 39 62	70 118 6	न्द्रहरू
NOF C PER	GA	36 % de	ኢ ኢ ኢ	2111	58 84 68 84	8 <b>£</b> %6	# 0.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00
% COMPOSITION COMPOSITIONS		កឧដ្ឋ	rm=1	កន្ង!!	នដន្តង	1881	ლე ტ.ე.
CC:0:101	No.	36%P	to 62 62 62 62 62 63	10022	4538 6528	2884	63 70 52 51
THERE SPEED	PER INTERVAL	12.28 12.28	F 5228	% ዚ <i>ኤ</i> Ի	54 88 85 £	6.22.35 6.22.39	65 75 79 79
	DATE AND TIME	30 min. Intervals 21 May 1959 (1400-1600)	21 May 1959 (1600-1800)	23 May 1959 (0000-0200)	23 May 1959 (11,00-1600)	23 May 1959 (1600-1800)	27 Feb. 1960 (1400-1600)

CONVAIR-POMONA

R/Y COMMUNICATIONS MEASURES FOR LOCAL CONTROL POSITION Table II-5 (continued)

							<del></del>	 			<del></del>		
TIME		9.0	8°77 8°77 8°77	7.7 8.8	9.9	10.7	6.9	10.2	& &	4.5	9•6	10.3	7.2
527	₹5	10.5 21.4	9.5	8 1	9.11 6.41	13.9	8.5	14.1	10.3	8.14	10.5	12.8	7.8
- 원	MIL	8 <b>6</b> 17 8	12.3 6.3	1 53	9.7	8 6.0	0.4 0.0	9•1	10.0	8•ग <del>/</del> €	9•3	0.11	ور برور
~	¥C	8 10 2 2	7.9	% % % %	10.1	80.0	7.7	 9.1	8.1	7.6	7.6	8.9	<b>6.</b> 7
זיי	TOTAL	236 130	230 163	134 23	190	215 55	293 1416	366	393	157	363	201	709
NUMBER OF CONTACTS	GA	53	525	۳!	33 33	132	73 154	8	112	m	77	것	227
NUMBER O	MIL	ជីដ	ωw	~ 1	ቋ ጽ	82	12 30	98	ដ	7	29	크	42
	AC	169	167	124 23	124	% র	232	 260	268	777	225	2112	044
ON OF NG TIME	β	88	27 1,2	α <b> </b>	16 28	28 17	82 9	8	ત્ર	8	21	ĸ	34.
COMPOSITION OF COMMUNICATIONS TIME WHITH INTERVAL	MIL	92	พผ	ន្តរ	18	25 12 13 13	, ,	9	7	∞	18	72	æ
00.000 00.000	VC	57	8%	88 00 100	<b>%</b> 4	<mark>ፈ</mark> జ	51	 63	63	8	19	84	28
Theas end %	PER INTERVAL	85 21	72 72 73	59 6	52 1,7	17 178 178	80 80 80	525	148	18	20	33	7.7
	DATE AND TIME	1 Hr. Intervals 21 Nay 1959 (1400-1600)	21 May 1959 (1600-1800)	23 May 1959 (0000-0200)	23 May 1959 (1400-1600)	23 May 1959 (1600 <b>-</b> 1800)	27 Feb. 1960 (1400-1600)	2 Hr. Intervals 21 May 1959	21 May 1959	23 May 1959	23 May 1959	23 May 1959	27 Feb. 1960

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Table II-5 (continued)

# R/T COMMUNICATIONS MEASURES FOR LOCAL CONTROL POSITION

·									<del></del>			
NTACES WITHIN	OVERALL		3.79 3.17	3.60	1.30 1.07 3.62 3.17	4.12 3.24 1.62 2.00	,	0 4 0 0 4 0 0 4 0 0 4 0 0 7 0 0 0 0	3.18	2.50 1.50 50	8. 8. 4. 8. 8. 4.	₹.
ER OF CC NYACTED ERVAL	CA		237	3.60	5.53 1.60 3.00 3.27	8 111	•	1 6 6 8 2 6 4 6 2 6 4 6	1.83	884 867	20.93 4.50	5.69
AVERAGE NUMBER OF CONTACTS PER PLANE CONTACTED WITHIN INTERVAL	MIL		80,00	8	0000 0000	88	•	88298 8848	2.50	3.152	1.00 5.50 6.50	3.40
AVER.	VC		4.20 2.91	₩ 8° €	69.9%	4.13 1.62 1.62	3	2 5 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	3.68	989	3.73	4.79
ar Plans	OW:DAT.T.		32.6 32.6	38.6	38 38 8 8 4 6 6 8 6 6 6 6	29.4 27.0 10.4	٧٠٠٧	8888 8888 8888 8888 8888 8888 8888 8888 8888	1.55	1832 1832 1832 1832	31.0 23.6 37.6	29.0
THE INITIAL	SECONDS)		28.2	86 1-18 1-18	2228 2228 2236	25.1	i	38°0	0 0 0 0	1787 1786 100	30°.47	35.1
AVEGARE TOTAL TIME PAR PLANE CONTACTED MITHIN INFERNAL	OSS)	777	ور و د	38.1 1.8.1	73.9	3.3	ł	13.7 37.6 31.0	, , , , , , , , , , , , , , , , , , ,	1 6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	31.7	21.9
NVERD		NC.	م م م م	7,00 F-0,00 V-0,00	36.0 31.0 31.0			3.25 2.42 2.42 3.42 4.42	34.5	7074 10076 1009	31.3	20.00
MP.S HIN		TOTAL	8	ಸ್ಥ	% & 73 <del>&amp;</del>	3,128	۱۸	23 53	77 7	22 17 0,	000	), d
Street C	VAL	S	<b>~</b>	νıς	י סמרי	1 401	1	992	9 .	,000	' 추추;	19
NOVERL ON PIANTS CONTACTED MITHIN	INT	MIL	Н	0 M I	ннн	ı aal	1	www.	m	01-01	1 400	N IV
ON OO		ΛC	23	24 24 24 24	1834 £	ជន្ល	w	7 E B	Ή	91 9 6 6 -	80°2 t	ଲ <b>୍</b> ଷ
		DATE ON PERS	30 min. Intervals	[-00 <del>]</del>	21 %ay 1959 (1600-1800)	23 May 1959 (0000-0200)		23 May 1959 (11,00-1600)		23 %ay 1959 (1600-1800)	27 Feb. 1960 (1400-1600)	

Table II-> (continued)

# R/T COMMUNICATIONS MEASURES FOR LOCAL CONTROL POSITION

A.D.1.03-1.1. A.T.D.C.

, - 4 % 							VO.	lume II	Pat	ge Lo	) <u> </u>			
CCI'S HIN	OVERMILE	4.29 3.61	3.70	4.19 1.77	3.45 3.68	2.38 50 50 50	4.07 5.70		h•26	4.46	3.74	3.78	3.3½	5.06
ဒြဋ္ဌ									•	•		•		
NUMBER OF E CONTACT INTERVAL	VS	14.50	3.50	3.00	3.25	2.91	2.81		17.71	3 4.30	3.00	3.09	3,19	4.93
IVERAGE PER PLAN	MTL	7.00	5,00 8,00	3.50	11.98 11.77	1.00	6.00		6,50	4.33	3.50	5.58	5.12	5.25
	VC	14.02 3.37	3.74	1.77	3.61	4.4 8.48	4.73 5.27		00*1	75-7	3.77	3.69	3.02	5.12
na Flans Tekval	OVERALL	38.4 15.2	11.3 34.1	32.4 15.6	37°50 37°50 37°50	36.2 23.0	31.0 39.5		43.5	39.1	29.5	36.4	34.4	36.6
AVERRET FORK TYNE PRE FLANE CONTACTED MITHER INTREVAL (SECONIS)	VO.	50.6 96.5	52.0 39.7	25.1	24.8 37.5	10°5 29°4	24.0 49.5		8.99	प्• <i>प्</i> ग	25.1	32.5	40.7	38.3
EAUX TOE MEACTED (S)	MIL	59.3	19.4 31.3	52.0	1,7.3 1,1.1	119.0 53.6	61.2		59•0	29.0	52.0	51.6	56.3	50.1
00 20V	γÇ	7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7	37.8 30.9	31.3	31.8	4.44 4.8	33.6 33.6	•	36•4	36.6	28 <b>-</b> 4	34.8	27.0	34.4
PLANES MITHIN AL	TOTAL	<i>%</i> %	71 177	32 13	55	1 <sup>†</sup> 17	72 73		%	88	1,2	96	19	140
	5	11,9	ដូង	H 1	ដដ	۲,	23		17	%	H	23	97	947
NOVETR OF CONTACTED	ij	N M	0 H	N 1	~ ~	<b>~</b> 0	avo		<b>4</b>	ņ	N	ង	ø	œ
	γC	1,2 27	35	នួង	8%	13%	<b>‡</b> ‡		59	. 29	8	19	37	98
	TATE AND TIME	Hr. Intervals 21 May 1959 (1400-1600)	21 May 1959 (1600-1800)	23 May 1959 (0000-0200)	23 May 1959 (11,00-1600)	23 May 1959 (1600-1800)	27 Feb. 1960 (1400-1600)		Hr. Intervals	21 May 1959	959 A	23 May 1959	23 May 1959	Feb. 1960
	TANK !	1 Hr. I 21 Ma (1400	21 Ma (1600	23 Ma (0000	23 % (7400	23 Ma (1600	27 Fe (1400		2 Hr. I	21. Ma.	23 May	23 Ma.	23 14a;	27 Fe

o

R/T COMMUNICATIONS MEASURES FOR APPROACH CONTROL POSITION (ANC.)

					AOTORG II	1 460	1.02	-E
TINE	OVERALL	12.6 15.6 17.0	13.9	13.05 14.05 15.05 16.05	22 H 25 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	272.73	2000 2000 2000	
5::~	<b>V</b>	1111	14.7	1111	21.7	18.2	1111	
AVERACE PER PLANE (SE	MII.	19.9 23.8	21.3	15.7	20.2	33.1	1111	
٠.	AC	1444 6.00	13.0 1.09.1 1.09.1	1415 2000 8000	5.4.6.4.6.4.6.4.6.4.6.4.6.4.6.4.6.4.6.4.	122,112,11	13.00 13.00 15.00	_
ŗ.	TOTAL	8 2 2 3 8 2 5 8	ፈ <u>ኞ</u> ፟፟፟፟፟፟፟፟፟፟፟	19 20 19 17	23,66 23,66	177 28 13 84	10 10 18 18	
OF CONTACTS INTERVAL	40	1111	1414	1111	1411	~	1111	
CO RECEIVED CO.	MIL	니크	9러 급	1100	0214	7 H H L	1111	
	AC	77 68 74 75 75 75 75 75 75 75 75 75 75 75 75 75	1388 E	13 45	8388	% % % Z	12,035	
N OF C TIME	GA		мн	1111	1~11	18 12	1111	
% CONTROLLION OF CONTROLLION OF TAKE	AC MIL GA	2   2	4-1%	ងស្បា	1217	118F	1111	
500 % NUT COO	NG KE	8888	58 834 54 64	182 100 100	93 93 93	100 88 88 88	8888	
WINE SPENT	ON R/T COCH.	437	23.72 23.74 25.74 25.74 25.74 26.74 27.74	877 57 87 82	11.5 11.4 17.0	15.5% 15.5%	%%~ <sup>1</sup> 7	
	DATE ATO TER	30 Min. Intervals 20 May 1959 (11,00-1600)	20 May 1959 (1600-1800)	23 May 1959 (0000-0200)	23 May 1959 (1400-1600)	23 May 1959 (1600-1800)	24 May 1959 (1400-1600)	

Table II-6 (continued)

R/T COMMUNICATIONS MEASURES FOR APPROACH CONTROL POSITION (ANC.)

TIMENAL	OVERALL	12.0	12.0 14.0	12.3	12.1	12.7	15.9	13.1	13.0	12,2	11.8	15.0	24.6
티보니	VO.		14.7	1 1	21.7	18.2	11.	1	8.6	ı	21.7	19.1	1
AVERAGE PLANE (CE	MIL	19.9 23.8	18.0 29.1	13.7	20.2	27.6	11	23.0	22.0	13.7	H.5	27.6	1
NET!	AC	11.9	13.1	72.0	12.3	12.5	15.3	12.9	12.1	12.0	н 8	12.7	11,06
TS.	TOTAL	177	53	8%	128 58	57 41	: 25 25	249	77	105	186	86	300
NUMBER OF COMPACTS	G.A.	11	ΗН	11	н [	84	1 1	į	લ	ı	rł	m	i
NO REGIONAL CI REG	1 1	r 1	7-7	ង្គា	77	17	11	w	ដ	ដ	ສ	17	1
×	AC	176	53 148	፠፠	105	88	25.2	7777	101	95	162	78	100
N OF S TIME	y <sub>C</sub>	! !	0 N N	11	н	<b>7</b> 7	11	ł	Н	1	н	4	1
CONTROLLION OF CONTROLL TIME TIME	HI LI	н ∞	17	<b>ដ l</b>		67	11	-4	91	ส	77	· 84	1
500 % ND::2:00	AC	8 8	, td 13	163	93	777	88	%	88		87	79	87
A TDE SPERT	PER INTERVAL	55 56	38 7	75 57		26	្ត ខ្លួក		- F	1 %	<b>~</b>	\	8
	DATE AND TER	1 Hr. Intervals 20 May 1959 (11,00-1600)	20 May 1959 (1600-1800)	23 May 1959 (0000-0200)	23 May 1959 (1400–1600)	23 May 1959 (1600–1800)	2h May 1959 (1h00–1600)	2 Hr. Intervals	20 May 1959	20 Mary 1959	23 May 1939	23 May 1939	24 May 1959

Table II-6 (continued)

R/T COMMUNICATIONS MEASURES FOR APPROACH CONTROL POSITION (ANC.)

													۸ŋ]	un	e T	Ι			Pε	ge	_1	04					-
PER PLANE CONTACTS PER PLANE CONTACTED WITHIN INTERVAL ATT CA OVERAIL	OVERGRAM	00.4	7.07	, c	3.33	5.17	L-29	24. 4. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6.		7,00	7. 2. 2.2.	, v	2	19 <b>•</b> 11	ν, ggg	ر م م م		27°	3°5	, ,	<b>}</b>	2.92	00°17	다 ( )	7<>>	-	
UMBER OF CONTACTE INTERVAL	5	!	<b>!</b>	ì	1	ł	1.00	100		l	1	1	l	i	1.00	! !	}	i	8	į 2	3	1	i	l	I		
PLANE C	MI Y	5	3 !	2	1	%°9	1.00	18		8	9	1	ł	2.50	6.50	1 5	3	м. 8	8.9	I	9	ł	į	1	ł	•	
AVE PER	VC.		20.42	- U	3.6	3,00	00	7, 8,7,	<u>;</u>	1,67	08°30	0 1 0 1	70.0	10.67	8,	بر در در در	•	5.14	8,0	88	30.44	20.0	8	07.1	2.57		
AVERGER TOTAL TIME PER PLANE CONTACTED WITHIN INTERVAL (SECONDS)	OVERALL	•	74•4	70.0	56.8 56.8	8, 12	12.9	69.66 66.00	20.00	58.0	1,11.8		1•69	7, 7,	61.2	77 0 0	30.02	63.2	111.0	8h.7	45•5	1.2 A	รู้ นั้	25.2	38.7	•	
TEAL TIME IN THE SECONDS)	ď		ı	1	1 1	1	7.41	1 c	† <del>•</del> 7	1	ı	:	1	1	21.7	3	1	1	36.3	1	21.3		1 1	1	1		
VEIGGE TOTAL TIME PHE FIA CONTACTED WITHIN INTERVAL (SECONDS)	MIL		19•9		95.0	ر د م	27.77	1 7	7.01T	109.7	69.0	1	1	1.1.	7. 2.	1 3	20.5	71.5	198.8	. 1	ł		ŀ		1		
AVEED	VC		78.9	95,0	6.78 n° a°	F 12 7	52°9	9.69	52.9	52.2	1001	75.3	69.1	7	61.69	55.6	40.7	69.1	70.01	84.7	53.6		0 r	, o	% 	ı	
PIANKS MITHIN AL	TOTAL	******	IJ.	7	2,9	)	0 1~	•••	•	01	9	m	ო.	ī	= 2	9	တ	α	ت <sub>ب</sub> د	1.4	77		75	g u	~~		
	క		. •	1	1 1	!	1	1 1	Н	1	ı	1	t		1 -	. 1	t		1 -	1 1	Н		ı	ı	ı t		
NOVERTE OF CONTACT FOR INTEREST.	MIL		Н	1	rl 1	۱ ،		1 1	Н	_	! ~	1	ı		~ ~	1 1	н		⊣ ი	J \$	i		1	1	1 1	l	
ō	AC		75	Ä	0 v	ו כ	rv v	<b>\</b> 0.	77	0	\ <b>V</b>	١m	m	. ;	អ្ន <sup>°</sup>	۰,9	~	ı	<i>-</i> د	H	t 67)	1	75	ឧ។	V.	-	
	DATE AND TIME	30 min. Intervals	20 May 1959	(0091-0071)			20 May 1959	(mat-mat)		טאַטר איא נכ	(0000=000)	(2000)			23 May 1959	(non-noth)			23 May 1959	( TODOT-DOOT )			2h May 1959	(10091-0071)			

Table II-6 (continued)

R/T COMMUNICATIONS NEASURES FOR APPROACH CONTROL POSITION (ANG)

<u> </u>		<del></del>					Aojn	me II		2age	1.65			_
AVERAGE NUMBER OF CONTACTS PER PLANE CONTACTED WITHIN INTERVAL	OVERALL	7.38 1.80	1,69 1,82	5.75 6.00	6.10 1.11	5.70	3.57 2.50	7.11	4.75	5,83	547	2°14	3,45	
UMISER OF CONTACTE INTERVAL	CA	1 1	00.4	1 1	8 1	1.00	1 1	. 1	1.00	1	8	1.50	I	
RAGE NUP PLANE C	MIL	1,000	3.50	13.00	88	8.50	. [ ]	2.50	3.67	13.0	7.67	8,50	i	
AVE Per	VC	7.65 1.96	5,30 33	5.00	5.83 4.38	5.43	3.57	7.39	5.32	रने द	5.40	5.57	3.45	
AVERNIE TOTAL TIME PEK PLANE CONTACTED MITHIN INTERVAL (SECORES)	OVERALL	88 <b>.</b> 3 76 <b>.</b> 8	56.2 68.0	70.7	74.0	95.0 65.1	50.9 39.8	93.5	61.6	71.2	64.5	81.7	50.5	
THE PLANT IN THE PROPERTY OF T	CA		2.4	1 1	22.7	27.27	11	1	8.6	ł	21.7	28.8	i	
VERME TOTAL TIME PER PLE CONTACTED WITHIN INTERVAL (SECORTS)	MIL	19.9	63.0	177.7	121.7 20.2	234.6	11	57.4	80.8	177.7	87.9	23µ.6	1	
AVE.	VC	91.3 75.5	59.0 69.9	61.0	71.6	63.5	50 <b>.</b> 9	95.6	64.2	6,49	63.6	η∙29	50.5	
BIR OF PLANES TACTED VITHIN INTERNAL	TOTAL	2 <u>2.</u> 15	ដដ	12	디다	51 8	1201	35	ਨ੍ਹੋ	18	귞	18	59	
TO S	క	1 1	нн	1 -1	H 1	н н	1 1	1	N	1	႕	~	ŧ	
NOFERTA OF CONTACTIND TAREST	MIL	႕႕	νн	러 1	27 14	<b>α ι</b>	1 1	~	m	Н	m	N	t	
	AC	នុង	9 6	49	ងង	~~	21 10	8	13	17	8	ភ	58	
	DATE AND THE	1 iir. Intervals 20 Nay 1959 (11,00-1600)	20 May 1959 (1500-1500)	23 May 1959 (0000 <b>-</b> 0200)	23 May 1959 (1400-1600)	23 May 1959 (1600-1800)	24 May 1959 (11,00–1600)	2 Hr. Intervals 20 May 1959	20 May 1959	23 May 1959	23 May 1959	23 May 1959	24 May 1959	

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Table II-7

R/T COMMUNICATIONS MEASURES FOR APPROACH CONTROL POSITION (RADAR)

					Vo.	lume II	Page	166
TTIME INTERNAL OVERALL	15.2	10.11.01	4421 1441	12.8	10.3	12.2	11.0	12.9
CONTACT W TENTON SCONDS)	0°77.	8 240 8 240	13.3	12.8	8°3	12.6	11.2	15.0
AVSPACIE PLANE (S)	16.5	1111	H	15.3	11	ដូរ	i	11.3
17ER AC	16.4	11. 10.01	25.00 20.00 20.00 20.00	12.0	10.5	12.3	11.0	12.7
TOUAL	108	101 101 101 101	15 15 15 15 15 15 15 15 15 15 15 15 15 1	163	11,9 194	59 137	343	196
NUARRA OF CONTACTS PAR INFERVAL MIL GA	27 59	9 19 10	° I∄®	98	10 11	22	27	ন্ত
NUAPER OF PAIR IN MIL	워크	1111	IIII	72	11	<b># I</b>	1	1
VC	. 518	35738	29 17 47 68	·X	139	11.5 11.5	316	191
N OF IS TIME IRVAL	538	8448	8 143 143	ß	7,01	10	∞	큠
% COMPOSITION OF COMMUNICATION INTERVAL	ឧឧ	1111	1#11	77	11	<b>a</b> !	1	w
COMPIUN WITH	<i>#</i> 8	928	85 82 82	.8	200	76 83	95	81
% TDG SPENT ON R/T COM.	16 70	አ፠፠	ይ <mark>ድ</mark> 3%	&	1.7 58	2h h7	ፚ	35
מירות הייה ממוגר	30 min.Intervals 12 March 1960 (1200-1300)	)1 March 1960 (11,00-1600)	. 11 March 1960 (1600-1800)	1 "r. Intervals 12 Parch 1960 (1200-1300)	14 March 1960 (11:00-1600)	14 March 1960 (1600-1600)	2 Hr. Intervals 11, March 1960 (11,00-1600)	14 March 1960 (1600-1800)

CONVAIR-FOMONA

R/T COMMUNICATIOMS MEASURES FOR APPROACH CONTROL POSITION (RADAR) Table II-7 (continued)

						Til Vol	339-მ <u>ს</u> ume II	Jun Pag	e 1960 e 167	1
ONTACIS VITHIN	OVERALL	6.11 7.20	6.92 6.12 6.92	12.60 7.60 7.60 6.91	7.09	5.96	ν.α & <b>δ</b>	7.30	7.26	
UMERROP O CONTACTED INTERVAL	GA	5-10 7-38	9-1-0-1 00-0-1 00-0-1 00-0-1	8 4 8 8	6.62	5.00 8.50	2.00	6.75	8.00	
AVERAGE NUMBER OF CONTACTS PER FLAME CONTACTED WITHIN INTERVAL	MIL	10.00	1111	1411	10.05	11	8 1	1	11. 8	
AVER	VC	6.00	7,7,7,7 2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0	1, 63 1, 25 7, 83 6, 83	7.00	6.04 7.08	5.11	7.35	7.00	
AVECAGE TOTAL TIME PER PLANE CONTACTED WITHIN INTERVAL	OVERALL	92.9 1.8.3	69.05 69.05 70.00	65.4 81.3 80.5 80.5	6.06	67.1	78.6 98.0	80•2	93.7	
TALL TIME IN OUR WARRY	GA	75.t 65.9	79.1: 3.5 114.0 38.2	82.4 93.3 90.2	81,.6	11.01 1.011	82.1. 138.1;	75.8	119.7	
CONTACTED MITHIN INTERVAL	MIL	164.8	1111	124.3	160.2	11	124.3	1	124•3	
AVER	VC	98 <b>.</b> 2 62 <b>.</b> 5	68.6 57.7 64.9	62.6 70.5 99.0 79.5	83.7	4.69 4.69	73.1	80.6	89.0	
ZANTS	TOTAL	9	1225	~~∞4	23	25 27	44	777	27.	
12 12 12 12 12 12 12 12 12 12 12 12 12 1	INTERVAL IL GA	νω	4440	4   44	13	N N	Н С	7	n <b>iw</b>	
NOWELL OF PLANTS CONTACTED WITHIN	HH		1111	1411	N	11	ч 1	1	Н	
ž č	AC	mo	쿼디워크	9799	æ	88	om	143	23	
	BALL CRY BLAC	30 min. Intervals 12 March 1960 (1200-1300)	11 March 1960 (11,00-1600)	14 March 1960 (1600-1800)	1 Hr. Intervals	(1200-1300) 11; March 1960 (11,00-1600)	14 March 1960 (1600-1800)	2 Hr. Intervals 14 March 1960	(1400-1600) 14 March 1960 (1600-1800)	

Table II-8

R/T COMMUNICATIONS MEASURES FOR DEPARTURE CONTROL POSITION (AUC.)

TEMENTAL	OVERALL	8.2	φ, r	10		10.2	0		17.7	8 C	8 6	8.3	2,51	77.11	7.7	ω.	10 10		7.7.	1; 1;	2	
E COPPACE VITHIN GECORDO)	3	ł	i	1 1	l	1	22.0	1	14.3	1.1	1 1	I	1 1		I	I	1 1		!!	I	1	
le 5	MIL	i	i	i	i	i	Ī		I	17	12.5	1	1 8	31	ŀ	1	11		1 1	I	I	
A MARK	SA PE	8	7.8	9.1	8.8	10.2	200	<u>;</u> 1	18.2	8.6	₹ 6°	8	2.0	ੇ ਜ਼	7.7	2	13.0 1.0		11 11 11	1.0	2°01	
çz	TOTAL	775	37	&`	18	ነኝ	18	£ 1	5	188	೫ನ	33	የፊኒ	, 2, <del>7</del>	ç	12	ដន	}	22	11	_	
OF CONTACT	GA	i	1	ı	1	ł	8	i i	e	١,	11	ł	1			1 1	!!		!!	1	I	
NUMBER OF CONTACTS	1 1	1	1	1	1	I	ł	1 1	į		~		1-	<b>=</b>		1 1	1 1		1 1	1	I	
Z	AC	5	37	જ	18	7.	ዩ	<u>۾</u> ا	5	782 782	ದನ	α	ያሪን.	ሥቭ		ដូ	สร	3	e E E	<b>ਜ</b>	7	
N OF C TIME	CA		1 1	l	I		23	1 1	5	- 3	1 1		11	11		1 1	. 1		1		ı	
%COMPOSITION OF COSTUNICATIONS TIME	MIL		1 1	1	1	1	1	1 1		1 1	ኤ I	٠	1 1	의		1 1	1	I	1	1	ļ	
KOSK COSHUN	VC	i i	38	8	8	ξ	3	8	1 8	38	28		38	ಜ್ಞ	}	96	88	3	88	32	97	
TIME SPENT	ON H/T COMM. PER INTERVAL	• -	19	ነቷ	វដ	o	°¤	10	1	24 13	ដៃដ	1 5	33 33	ឌ	<b>\</b>	IN W	. ኢ.	91	0,5	) C	7.7	
	DATE AND TIME	30 Min. Intervals	20 May 1959	(mat-mat)			23 May 1959 (0000-0200)			23 May 1959			23 May 1959 (1600-1800)			24 May 1959	(mat-nott)		2h May 1959	(1630-1800)	-	

Table II-8 (continued)

R/T COMMUNICATIONS MEASURES FOR DEPARTURE CONTROL POSITION (ANC.)

						····							٧	OLUI	ne 1	<u> </u>	P	age	109
TIMERVAL OVERALL		8.0	<b>⇒</b> 6\	10°1 10°4	8	30 10 10 10 10 10 10 10 10 10 10 10 10 10	0°01 1°01	7.8	H.3	7.17	10.9	χ. Υ.	<b>.</b>	10.1	9•11	10.3	10.0		F.
SE CONTACT TEACH VITHER INTER (SECONDS)  CARACTER  OVER		ł	1	22.0	ر د		1 1	ł	ł	1	I	. 1		22.0	14.3	1	l		1
AVERAGE PLANE (SE		!	1	! !		15.2	22.6	1	!	ł	!	1		1	15.2	22.6	!		1
PER AC		8.0	ካ•6	9.7	, ,	7.9 9.6	9.8	7.8	H.	7, 1	10.9	υ α	5	9•6	11.2	6.6	0	2	11.3
S	TOTOT	62	177	33	ì	% % %	91 33	, io	14	75	ीं	70.	0	25	TOT	121	¥	6	&
NUGBR OF CORPACTS	3	ł	ł	α	}	<b>س ا</b>	11	:	1 1	1	I		l	8	m	ı		3	1
TO RECAR	776	ŀ	ł	•	ł	7	-7		1 1	1	1		I	1	2	-:3		l	I
1	JAC.	20	77	Ħ,	î	55	85 78 78	7	<b>1</b>	'n	ੇਰੋ	,	126	8	76	120	3	<b>6</b> 5	66
N OF S TIME RVAL	GA.			ង	!	9	11		1 1	İ	1 1		1	ŀ	77	l	•	I	i
% COMPOSITION OF COMMUNICATIONS TIME WITHIN INTERVAL	HIL	1		I	I	18	<b>!</b> র	Ī	1 1		1 1		I	80	٥		•	į.	1
COSTUN	AC	<u> </u>	38	87	8	<b>2</b> 88	2,5		88		38		8	92	88	ő	`	8	8
% TIVE SPENT ON R/T CO:21.	PER INTERVAL	o f	<b>2</b> 7	0,	<b>W</b>	84	25	}	ኤ <sub>ር</sub>	} 1	₹ <b>~</b>		16	2	17	. œ	3	٥	15
	DATE AND TIME	Hr. Intervals	20 May 1959 (1600-1800)	23 May 1959	(0000-0000)	23 May 1959	23 May 1959	(mot-mot)	22 May 1959	(comment)	24 May 1959 (1600-1800)	Hr. Intervals	20 May 1959	23 May 1959	23 May 1950	() they 1977	23 May 1959	2h May 1959	24 May 1959

Table II-8 (continued)

R/T CONTUNICATIONS MEASURES FOR DEPARTURE CONTROL POSITION

·····	1				Votui	ne II Pa	age 170	7
ONTACTS	OVERALL	4 6 6 6 2 8 8 8 8	2.25 17.00 17.00	4-30 4-50 4-50 4-50	1,475 1,12 3,17 2,80	2.62 3.33 3.33	ይ ይ ያ ያ ይ ያ ያ ያ	
HER OF CONTACTED	VO	1111	1811	8 111	1111	1111	1111	
AVEATOR NUMBER OF CONTACTS PER PLANE CONTACTED WITHIN INTERVAL	MIL	1111	1111	3.50	1131	1111		
AVE Per	VC	13.38 3.28 2.28 2.25	3.20	5.25 1.67 1.50 1.00	2.00 2.00 2.00 2.00	2.00 2.00 2.62 3.33	ጜዹኇ <b>ኇ</b> ፞ቘ፟ጟ፟ጜ	
SIC PLANE FRIVAL	OVERALL	38.4 26.1 22.2 22.2	38.2 31.9 25.6 6	39.5°5°5°5°5°5°5°5°5°5°5°5°5°5°5°5°5°5°5°	39.4 19.4 35.9 32.0	33.0 32.1 31.2	39.9 37.9 26.9 25.2	
AVEGAGE TOTAL THEE PER FISHE CONFACEIN INTERVAL (SECONDS)	B	1111	0°11	£3.0	1111	1111	1111	
MARI TOTA TACTIND V	MIL	1111	1111	13.2	1181	1111	1111	
NOO	VC	38°1 26°1 29°1 20°2 20°2	28 28 1 27.52 1	95.6 39.9 32.7	35°-17°-17°-17°-17°-17°-17°-17°-17°-17°-17	.0.2% 4.4% 4.4% 5.4% 5.4% 5.4% 5.4% 5.4% 5.4	39.9 37.9 26.9 25.9	
WILLIAM MILLIAM	TOTAL	۶4 8	1901	νοων	ထမ္မတ	พพ๛๛	927~w	
	:  G	1111	1411	H 1 1 1	1111	1 1 1 1	1111	
NONE OF OF	MIL		1 1 1 1	1101	LIMI	1111	1111	
	AC	०प्तरु∞	1 40°E	4000	∞ ฝ <i>างก</i>	๛๛๛	ራቪ <u>፦</u> ሠ	
	BULL GNV SEVE	30 min. Intervals 20 May 1959 (1600-1800)	23 May 1959 (0000 <b>-0200</b> )	23 May 1959 (11,00–1600)	23 May 1959 (1600-1800)	21, May 1959 (11,00 <b>–16</b> 00)	2½ May 1959 (1600-1800)	

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Table II-8 (continued)

R/T COMMUNICATIONS MEASURES FOR DEPARTURE CONTROL POSITION (ANC.)

					<del></del>			Volum	ne I	<u> </u>	Page	171		
WITHIN O	OVERALL	4.39 3.13	8.5. 7.	5.20 1,00	4.79 3.30	3.00 2.93	3.11 2.40	3.82	3•149	1.52	4.28	3•42	3.30	
CONTACTEL	CA	11	8 1	8.8	1 1	1 1	11	1	2.00	3.00	I	l	!	
- (- 1	MIL	11	11	3.50	7,00		11	Į	1	3.50	7.00	1.		
PER	VC	4.39 3.13	3-14	5°77 10°03	4.79 3.22	2.93	3.17 2.40	3.82	3.57	14.70	4.28	3.42	3•30	
TERVAL	CVHRAIL	35°22 29°5°2	34.45 25.6	66.5 111.6	17.8	23.3 33.0	38-7	32.6	34.9	52.1	1,11.2	7F-7F	37.2	
AVERAGE TOTAL TIME PAGETHAN CONTACTED MITHIN INTERVAL (SECONDS)	GA	11	· 김	13.0	1 1	1 1	11	1	144.0	43.0	i	ì	ł	
MORE TOTAL PACTED M. (SEC	MIL	11	11	53.2	906	11	1 1	1	1	53.2	9006	ı	1	
CON	VC	35.2 29.5	33.3 25.6	69.1 39.5	47.8 31.6	23.3	38.7 26.1	32.6	34.2	52.8	l <sub>1</sub> 2.6	34.1	37.2	
PLANES	TOTAL	18	10	ងដ	91	∞∄	25 10	33	7,7	23	83	19	<u>۾</u>	
	I GA	1 1	rt 1	н	1 1	1 1	1 1	1	н	H	1	1	1	
NUMBER OF CONTACTION	NIL		1 1	1 %	1 1	1 1	1 1	1	ı	01	Н		1	
2 0	AC	877	05-	۰ <sup>‡</sup>	8,6	∞ <sub>ቭ</sub>	25 10	33	ភ	80	28	51	30	
	BOTH CNV and	1 Hr. Intervals 20 May 1959	23 May 1959 (0000-0200)	23 May 1959 (11,00–1600)	23 May 1959 (1600-1800)	24 May 1959 (11,00-1600)	2h May 1959 (1600 <b>-</b> 1800)	2 Hr. Intervals	23 May 1959	23 May 1959	23 May 1959	2h May 1959	24 May 1959	

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Table II-9

R/T COMMUNICATIONS MEASURES FOR DEPARTURE CONTROL POSITION (RADAR)

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Table II-9 (continued)

R/T COMMUNICATIONS NEASURES FOR DEPARTURE CONTROL POSITION (RADAR)

AVELAGE NUMBER OF CONTACTS PER PLANE CONTACTED WITHIN INTERVAL	OVERALL	4.50 3.60 3.54	9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	3.56	 88	4.53	3.52			
UMINER OF CONTACTE INTERVAL	CA CA	98.11	90000 90000	2.8	4.33 2.50	7.00	3.60			
HAGE NUI	MIL		90 1 1	1 1	8.	•	9. 8.			
NAY Nea	VC	4.33 3.60 3.54	3.50 3.78	4.75 3.56	9.8 .80	4.38	3.53			·
AVERAGE TOTAL TIME PER FEANE CONTACTED METHEN INTERVAL	OVERALL	68.6 46.3 32.7 28.5	30.4 27.1 31.0 36.7	63.8 29.7	31.0 35.0	5.64	₹. 4€			
THE THE T	GA GA	61.9 73.0 -	36.6 22.7 21.3 28.7	4.79	39.5 25.0	ħ.73	33.7			
VERVER TOTAL TIME PHE FER CONTACTED MITHER INTREVAL (SUCCEDE)	MIL	1111	35.9	1 1	32.9	ı	32.9			
AVEAL	VC	69.3 43.3 28.7	29.2 27.4 31.8 37.6	63.4 29.7	29.7	<b>†*8</b> †	34.6		•	
CANTS	TOTAL	55 5 E	27 27 20 20 20 20 20 20 20 20 20 20 20 20 20	18	₹ <b>8</b>	3 <del>,</del>	<b>‡</b>	alanda damar yalan kung ang kan		
NUMBER OF PLANTS CONTACTED MITHIN	MIL GA	न्तर	ดดนน	N I	wá	Q	ľ		-	
NUMBER	MIN		1411	1 1	<b>ત</b> :	1	ਜ			
	AC	ขอพมี	2440	16 18	8 8	SK.	38			
	SECTION ON SERVER	30 Min. Intervals 23 Feb. 1960 (1400-1600)	23 Feb. 1960 (1600-1800)	1 Hr. Intervals 23 Feb. 1960 (1400-1600)	23 Feb. 1960 (1600-1800)	2 Hr. Intervals 23 Feb. 1960 (1400-1600)	23 Feb. 1960 (1600-1800)			

Table II-10

R/T COMMUNICATIONS MEASURES FOR D2 RADIO CONTROL POSITION

															<u> </u>	olu	ne .	ΙΙ		Page	3 17	
TIME	OVETALL	19.8	20.1	32.2	14.9	4.0	0.0	O.T.	15.5	24.3	19.5	25.9	32.8 9.8	21.7	27.3	22.0	20.7	6.13	17.3	28.0	•.	
F 1	GA	1 1	28 28 29 20 20 20 20 20 20 20 20 20 20 20 20 20		1	1	:	;	1 1	:	:	24.1	11.6	11.6	66.8	! ! ! !	1	†°8†	1 1	1 ;		
AVERAGE PLANE (SE	MIL	40.4	8 4 4 7	)   	i	i	1	1	23.3	i	i I	28.6	± 6	11.8	88.8	) !	i	i	22.7	61.3	-	
PER	AC	14.6	ا و بر بر و ه	 	14.9	18.1	18.8	21.0	13.9	24.3	19.5	26.1	31.0	24.8	23.1	20.0	20.7	19.1	۳: د د د	25.8 25.8		<u> </u>
	TOTAL	15	87	‡ ~	አን	\ ፠	56	엄	77	; <u>c</u>	1 d	8	ထင္	าส	61	₽₹	οv	ದ	몺	ನ 83		
NUMBER OF CONTACTS	СА	0	Q1 -	4 0	c	0	0	0	00	<b>&gt;</b> C	0	5	.0.	t at	QI -	00	0	N	0	00		
TO REGARMON		m	N	<b>4</b> 0	c	<b>)</b> C	0	0	ង្គ	> <	00	Q	0 -	ન ત	ដ	mc	0	0	97	0 m	1	
	AC	12	19	or		 5 %	, % -	21	59	± 5	김성	15	·ω	94	9	57.4	9	19	ੇ ਫ	ដូន	ì	
N OF	GA	:	19	<b>9</b> !		1 1		1	;	! !	; ;	2	<u> </u>	43	56	1	1	5	1 1	1 1		
& COMPOSITION OF COMPOSITIONS TIME	AC MIL GA	17	검	8	ł	; ;	: :	1	25	1	: :		3 ;	H M	24	ξ.		1	8	1 %	S.	
S CON	AC	C I	6,6	₹5	3	8 5	3 5	100	75	8	ဒ္ဌဒ္ဌ	60	68 63	93	27	.96	38	70	 	, g s	2	
Theas arts %	ON R/T COLM.		0 TZ	97,	21	747	× 5	15	61	ส	ን ድ	` .	<b>X</b> -4	ર્સ જ	õ	1%!	62 ZI	ý	0 %	ដេ	ñ	
	מיירשי מיירא מיירא מי		15 May 1959 (0800-1000)			20 May 1959	(1400-1600)		23 May 1959	(1400-1600)			24 May 1959 (1400-1600)		090	(1600-1800)			25 May 1959	(2001-0041)		

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Table II-10 (continued)

R/T COMMUNICATIONS MEASURES FOR D2 PADIO CONTROL POSITION

·					~~~	-									<del>-</del>	OTM	nc.	77		age	-17
PERS VINSVAL	OVERALL	20.7	9,12	1.6.4	D. 0.	17.0	20.1	16.9	17.8	י טיר	17.8		19.0 23.3	16.1	19.4	15.6	×1.3	27.3		31.7	•
AVERAGE COPERACE TIME PLANE VITHEN INTERVAL ((EECONIX:)	GA	:	1	i i	i i	35.3	1 1	1	9*9	1			35.3 28.2	. ;	•	ŧ	!	24.1		8 <b>.</b> 66.8	
AVERACIS TER PLANE (UE)	MIL	4.9	i	1 :	17.2	1	38°2	15.2	15.9	10. 18.	1,9.2		33.2	;	;	23.3	<b>!</b>	28.6	! -	33.2	
l ~ !	AC	22.8	18.6	17.4	0.0	15.8	77 77 77	18.0	18.0	ν. Σ.	17,		23.2	16.1	19.4	14.5	21.3	27.8		27.3	
	TOTAL	97	31	37	62	65	ጵጵ	17	<i>ኤ</i> :	9 8	'n₩		35 19	87	38	8	33	8	ξ,	33.7	
OF CONTRACTS INTERVAL	GA	0	0	0	0	ন	1 1	ì	Н	ŀ	1 1		 U.4	!		1	1	wa	)	α l	
	MIL	Q	0	0	۲-	i	디~	19	Μ	~ <b>7</b> (	n 0		ちょ	1	<b>!</b>	75	i	α 0	Ŋ	477	
4	AC	‡	31	37	55	19	ი ი ი	6	ಚ	, 62	8 6	1	82 FJ	2	<u></u>	83	33	85	ţ	33 33	
N OF S TIME	C:A	1	1	i	i i	ដ	1		0	i			3 t		i !	.1	ŀ	15	<del></del>	#!	
% CONTOCTUON OF COSTUTIONS TIME NUMBER INTERNAL	MIL	-3	. !	ł	80	ł	걸	አጽ	m	ኒሊነ	5	<b>.</b>	25		1	19	i	<b>~</b> (	¥	3.1	
CONTROL & CONTROL CONT	VC	ક	28	001	8	87	27. 87.7	9.49	%	χ,	<del>2</del>	!	\$\$	,	38	~ 당	81	828	8	2 <sup>4</sup> 50	
TREES SPEED &	PER INTERVAL	9,0	2 P	Š	14	62	8	F0	83	89	% % % %	3	18 13		2 4 12	T1	21	87	Q	33	
	DATE AND TER	30 min.Int.Cont.	(1600-1800)	, , , , , , , , , , , , , , , , , , , ,	****	8 %arch 1960	(0091-0071)	, gamentus flor	o March 1960	(30-1630)			1 Hour Intervals 15 May 1959 (0800-1000)		20 May 1259 (1400-1600)	23 May 1959	(1400-1600)	24 May 1959	(7,400-1600)	24 May 1959 (1600-1800)	

CONVAIR-POMONA

Table II-10 (continued)

RAT COMMUNICATIONS MEASURES FOR D2 RADIO CONTROL POSITION

ONA				· · · · · · · · · · · · · · · · · · ·					TM 339 Volume	9-84 : II	June Page	1960 176
TIME INTERVAL		18.0	25. 8.8.	17.3	18.1 16.3	20.5	17.1	17.1	56.6	56.9	6.0g	
E CONTACT T WITHIN IN SECONDS)	S.	<b>₹.8</b> 4	: :	₩.	9.9	30.5	:	l.	16.4	. 8.99	<b>₹.</b> 84	
AVYRAGE CONTACT TIME PLANE WITHIN INTER (SECONDS)	MIL	22.7	6.4	26.8 24.5 54.5	16.2 30.9	26.7	!	83°3	17.8	33.2	31.6	
A HER	VC	15.3	19.9 12.4	15.4 16.7	18.3 15.6	17.6	17.1	16.4	30.1	23.8	17.7	
	TOTAL	52 43	1.7 98	10t 37	151 101	ŧ,	125	128	₫	70	8	
OF COMPACES	GA.	a !	t : i t	٦	ч 1	9	! !	i	13	α	α	
NUMBER OF CONTACTS		10 3	a r-	디유	<i>~w</i>	σ	}	প্র	#	<del>7</del> .	13	
	AC	01 01	£8	89 27	177 177 178	39	125	116	<b>L</b> †t	衣	8	
N OF	GA	01 	!!	∞	01	17		l	13	2	<b>ار</b>	
g COMPOSITION OF	AC MIL GA	₹S1	٦ O.T	Ά <i>ኢ</i>	40	81	1	13	<i>‡</i>	25	ส	
THOO %	AC	81.65	88	76 65	፠ጜ	62	700	87	83	88	477	
rnags spar %	ON R/T COSA.	75 78 78		25	76 113		30	31	· †Z	27	24	
	יי פואריי רויגא פייאט	1 Hr. Int. Cont. 25 May 1959	25 May 1959 (1600-1800)	8 March 1960 (1100-1600)	9 March 1960	2 Hr. Intervals 15 May 1959 (0800-1000)	20 May 1959 (1400-1600)	23 May 1959 (1400-1600)	24 May 1959 (1400-1600)	24 May.1959 (1600-1800)	25 May 1959 (1400-1600)	

Table II-lo (continued)

R/T COMMUNICATIONS MEASURES FOR D2 MADIC CONTROL POSITION

						 		Volu	ne II	PE	ige I//
TIMES INTERNAL		6.41	17.7	17.3		:	-				•
	GA	1	35.3	9•9	,					·	
AVERACIU C V PLEIS (1330	MTL	14.8	25.7	22.3							
~	VG	14.9	15.7	17.1		 ·		· · · · · · · · · · · · · · · · · · ·			
	TOTAL	941	דקוד	258							
OF CONTACTS INTERVAL	СА	1 1	7	ᆏ		••					
NUMBER OF CONTACTS	MIL	σ	77	72							
W	AC	137	911	245							
N OF C TEMES	υV	1	9	0							
S CORROBERTON OF CORRUPT VINE VINE VINE VINE VINE VINE VINE VINE	AC MIL GA	9	22	9							
ROOR ROMENOS	ΛC	ま	23	46							
TWEETS BELL &	PER INTERVAL	31	35	62							
	DATE AND TIME	2 Hr.Int. Cont. 25 May 1959 (1600-1800)	8 March 1960 (1400-1600)	9 March 1960 (11430-1630)		-			-		

Table II-10 (continued)

R/T COMMUNICATIONS MEASURES FOR D2 PADIO CONTROL POSITION

***************************************	1-			ţ			339-84 ume II	June 1960 Page 178	
AVERAGE NUMBER OF CONTACTS PER PLANE CONTACTED WITHIN INTERVAL	OVERALL	-		5.00 4.57 5.20 2.00	5.75 4.00 3.00 3.50	3.67 4.00 2.17 2.10	2.71 3.00 1.50	4.20 5.17 5.25 2.75	
UMBRIA OF CONTACTED INTERVAL	VO		00.1.00	1111	1 1 1 1	5.00	8 111	8	
PLANE C	MIL		3.00 8.00 1.00	1111	8 1 1 1	8.5.8	5.50	3.00	
AVE	VC		3.00 5.33 1.50	5.00 7.27 2.00	6.56 4.00 3.00 3.50	3.75 4.00 2.00 8.00	2.15 3.00 1.50	4.75 5.25 5.25 2.71	
AVERAGE TOTAL PLINE PER FLANE CONFACTION MITHIN INFERVAL	OVERALL		50.03 80.03 80.03	74.7 82.8 97.5 41.9	91.8 63.1 68.4	494 1.491 1.71.72 1.60.72	74.0 65.3 31.0	91.9 79.2 93.0 77.1	
CHAIL TIME OF A CONTROL OF A CO	CV		35.3	1111	1 1 1 1	120.4  46.8 46.6	133.6	% : : :	
OBEGGE TOTAL TIME PER FLA CONFACTOR MITHIN INFERVAL (SECONDS)	MIL		121.3 14.9 1.1.5	1111	93.3	57.1 -2.4 11.8	122.7 73.0	 113.3 183.3	
CON	VC		23.7 28.7 38.7	74.7 82.8 97.5 41.9	91.3 63.1 73.0 4.8	88.454 6.454 6.656	31.0 31.0	90.7 62.2 93.0 61.8	
ATHESS WITHIN	TOTAL		ろるてら	il r v.o	04.0 PB	0000	1080	どではる	
NUMBER OF PIXMES CONTACTION STEELING	T CV		0 0 11 0	0000	0000	чочч	4000	4000	
CONT	AC MIL		ተጠቀ የ	14-20 0000	<i>დ</i> 040	÷ 044 → 044	41-60 0000	- 444F	
	MATT OND TIME	30 min. Intervals	15 May 1959 (0800-1000)	20 May 1959 (1400-1600)	23 May 1959 1400-1600)	24 May 1959 (1400-1600)	24 May 1959 (1600-1800)	25 May 1959 (1400-1600)	

Table II-10 (continued)

R/T COMMUNICATIONS MEASURES FOR D2 NADIO CONTROL POSITION

}	۲	<del></del>					······································									9-84 9-II		ne 1960 7e 179	
AVERAGE NUABER OF CONTACTS PER PLANE CONTACTED WITHIN INTERVAL	OVERALL	2.67 5.17	8	17.4	4.33	4.33	3.67 2.14	1. 1.7	3-67	12.51	3.18		3.5 0.4 0.4	6.21	ZZ.+	1, w 1, w 2, w	4.29 3.1	2.47 3.3	5.2 4.78
UMBER OF CONTACTE INTERVAL	CΛ		1	i	5°0	1	11	5	3		ł		0.14	;	1	1 1	8.0	0 1	2.0
HAGE NU PLANE ( II	MIL	2.0	;	3.5	. 1	ν, ξ	88	r C	8	1,50	2.00		2 0 0 0 0	ł	!	0.4	2.0 1.0		3.0
AVE PER	OV	2.80	8	5.0	4.69	00.4	22.20	ri S	88	1,-60	3.30		4.33	6.21	4.22	6.38 3.3	9.0 4.0	8.1 3.3	5.71
AVERAGE TOTAL TIME PER PLANE CONTACTED WITHIN INTERVAL (SECONDS)	OVERALL	55.2	77,00	47.5	73.8	77.4	73.7 16.1	70	67.9	65.9	5.55		66.6 64.2	1001	82.1	92.5	116.8	78.1	93.5 109.9
AL TIME MITHIN IN ROOMIS)	CA	1 1	i	! !	9°02	ł	1 1	۲	1	ł	ł		35.3	ł	<b>:</b>	<b>!</b>	120.4 92.8	133.6	8:
EMOE TOT NTACTED (S)	MIL	8 <b>.</b> 21	į	₹ <b>.</b> 09	.1.	17.7	77.0 30.1:	080	32.8	28.0	98.5	-	83.1 37.1	i i	i	93.3	57.1. 7.1	116.1	113.3 183.3
OS S	VC	63.7	23.00	45.2	71.3	57.4	72°1 10°4	0, [0	72.3	70.9	52.3		71.6	100.1	82 <b>.</b> 1	92.3 70.3	128.1 96.9	57.3	87.4 100.6
Alas Trion	TOTAL	90	٠ ر	i E	15	٥,٠	9 ~	ç	) 18	17	Ħ		99	17.	0,	16	۲ <u>-</u> 1	15	10
ACTED AT	់  ទ	.00	0	0	ď	i		-	1 1	1	l		24	ł	!	1 1	нн	н <b>!</b>	н
NUMBER OF PLANTS CONTACTED WITHIN INTERVAL	MIL	чо	0	Q	1	α,	a w	٥	1 0	N	Н		ณ ณ	ţ	i	m i	.H 01	. <del></del>	24
× 0	AC	Ś	٠ <u>٢</u>	17	13	۷.	<b>7 7</b>	76	ደየ	ኢ	q		9 ~	7,7	σ	55 01	wω	99	29
	DATE AND TIME	30 Min.Int.Cont. 25 May 1959 (1600-1800)			8 March 1960	(0091-0071)		Opt dame o	(11,30-1630)			1 Fr. Intervals	15 May 1959 0800-1000)	20 May 1959	(0091-00+1)	23 May 1959 (1400-1600)	24 May 1959 (1400-1600)	24 May 1959 (1600-1800)	25 May 1959 (11,00-1600)

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Table II-10 (continued)
R/T COMMUNICATIONS WEASURES FOR D2 RADIO CONTROL POSITION

,								Volume	3 II	Page	180
ဗန္မ	OVERALL	3.92 5.21	1.95 3.36	5.39	3.0	5.95	5.33	3.56	3•33	5.28	5.21
UMMEN OF CONTACT INTERVAL	8	1 1	8	8 1	0	1	!	6.5	0. 0.	0.0	1
AGE NUP PLANE C	MIL	9.0	2 2 20 20	2.33	9.0	<b>!</b> .	0.4	1.33	3.5	4.33	3.0
AVER PER	γC	4.1 5.41	. 5.24 3.86	5.96 1.86	3.0	5.95	5.52	3.62	3.38	5.71	5.48
FE FIANE PRIVAL	OVERALL	75.6 66.5	85.9 63.2	97.6 72.5	61.6	101.9	91.0	₽ <b>.</b> .5	8°+68	106.9	77.5
AVEGAGE TOTAL TIME PER FIANE CONTACTED MITHEN INTERVAL (SECONDS)	¥:	1 1	70.6	9.9	91.6	!	!	106.6	133.6	96.9	1
ACE TOE FIACTED V	MIL	12.8 60.4	1117.4	37.8 51.5	80.1	1	93.3	23.8	116.1	136.8	5•₩
AVE	VC	81.3 67.2	80°1 61°3	108.8	52.7	101.9	9.06	108.9	80.5	101.2	81.5
NES HIN	TOTAL	22 29	ដដ	28 24	18	ส	ಸೆ	18	ส	18	88
ACTED STREET TANKS	CA	1, 1	~ <b> </b>	ч I	N	1	ł	N	ri	H	1
NONE A OF CONTACTIED	MIL	н а	22	mm	m	!	ო	m	đ		m
	AC	ដង	17	2 <u>t</u> 21	13	ส	ส	13	97	<b>†</b> T	52
	BOIL ON LINE	1 Hr. Int. Cont. 25 May 1959 (1600-1800)	8 March 1960 (11,00-1600)	9 March 1960 (1130-1630)	2 Hr. Intervals 15 May 1959 (0800-1000)	20 May 1959 (1400-1600)	23 May 1959 (1400-1600)	24 May 1959 (1400-1600)	24 May 1959 (1600-1800)	25 May 1959 (1400-1600)	25 May 1959 (1600-1800)

Table II-10 (continued)

R/T COMMUNICATIONS MEASURES FOR D2 HADE CONTROL POSITION

				 		TM 339 Volume	-04 	June Page	1900 181
AVELAGE NUMER OF CONTACTS PER PLANE CONTACTED WITHIN INTERVAL	OVERALL	η•70	<b>9</b>						
CONTACTED INTERVAL	SA.	2,00	1.00						
PLANE C	MIL	3.50	2.40			÷			
AVE Per	VC	5.27	6 <u>.</u> 62						
AVESTIN TOTAL TIME PER PLANE CONTACTED WITHIN INTERVAL (SECONDS)	OVERALL	83.3	0.401						
VEGUTE TOTAL TINE PLA PLA CONTACTED MITHIN INTERVAL (SECONDS)	ζŲ	70.6	9*9						
CACT TOTAL TACTIBLY (S)	ML	0*06	53.6	·					
AVE.	VC	82.6	113.5			٠			
CANTAS	TOTAL	30	1,3		د سور پاکر و 60 و 4. روی و و و و و و و و و و و و و و و و و و	And the second second	**************************************	R to the manner of the	
包含	Column	Ņ	н						
NONESTA OF CONTACTED	H.	9	w						
	AC	52	37						
	TATE AND TIME	2 Hr. Int. cont. 8 March 1960 (11,00-1600)	9 March 1960 (11,30-1630)						

Table II-11

R/T COMMINICATIONS NEASURES FOR D3 RADIO CONTROL POSITION

			<del></del>		<u> </u>	ume IT	Page 182
TIME	OVERALL	73.6 19.1 11.0	18.1 15.7 7.1 26.9	15.9 15.5 29.5	21.3	24.1	31.0
E CONTACT MITHEN (SECONDS)	GA	1111	1111	15.5	1111	1111	1111
	MIL	73.6 23.3		29.52	22.1	101	115.0
A REG	VC	1411	18.1 15.7 7.3 26.9	15.9	22.22	14211	29.0
	TOTAL	7 p p s	24 8 4	ччи!	715%	⊒w	18 Ju
NUMBER OF CONTACTS	GA	°111	1111	1111	1111	1111	
TO RECEIVED		ן בעוה	1111	4 <i>m</i>	1416	<b>4111</b>	Iμωω
	AC	011	84 80	٦111	2017	~	1001
THION OF THE	GA	1111	1111	1111	1111	1111	1111
		8281	1111	1881	1815	1111	1281
CONTROL &	AC	1811	8888	8	81 28	8811	[전 <sub>8</sub> 6
THE SECTION AND THE SECTION AN	PER INTERVAL	_	28 m 01	∺ന∞∣	22 1 23	1150	148°
	DATTE AND TIME	30 Nin. Intervals 15 May 1959 (0800-1000)	20 May 1959 (1400-1600)	20 May 1959 (1600–1800)	21 May 1959 (1400–1600)	21 May 1959 (1600-1800)	22 May 1959 (1600–1800)

R/T COMMUNICATIONS MEASURES FOR D3 RADIO CONTROL POSITION Table II-11 (continued)

)NA	office region was					والمنافقة والمنا	···	TM 339-8 Volume I		June 1960 Page 183
INTERVAL	OVERAJI	21.8	18.6	ł	17.6 17.6 18.6 27.1	18.0	111196	아마. 아마. 아마.	14.6	24°.5 25°.1 22°.7
224	GA.	1	1 1	I	1111		1114	1111	21.8	53.1
H . 50	Ä	1	1 1	l	1111	1111	1111	1111	14.2	1111
A PER	γC	21.8	١٩	1	14.1 17.6 18.6 27.4	10.0	19.6	10.00 10.00 10.00 11.00	14.7	15.4 13.1 21.9 22.7
	TOTAL	m	10	`1	11. 11. 8 L	7211	1110	ಸ್ಲ 11	82	19 20 7
NUMBER OF CONTACTS	G.A	1	1	1 1	1111	1111		1111	ļa	1911
SO RECENTANT	MIL	i	ł	1 1	1111	1111	1111	1111	ကဌ	1111
	AC	m	. 1 .	^	건건~4®	7a11	1111	Ho 11	ಜ್ಞಜ್ಞ	150
NOF IS TIME	GA	ì	1	1 1	1111	1111	1111	1111	1 1	1 62
% COMPOSITION OF COMMUNICATIONS TIME	AC MIL GA	1	ł	1 1	1111	1111	1111	1111	& ಟ	
CONTRACTOR	AC	00.	1	ន្ទ !	8888	8811	1118	8811	849	1038
A TIME SPENT	PER INTERVAL		† <b> </b>	۱ ۰	21.4£	۰211	1110	ងអ!!	ର୍ଚ୍ଚ	9 88 6
	DATE AND TIME	30 Min. Int. Cont	(0000-0500)	,	23 May 1959 (11:00-1600)	2lı May 1959 (11,00 <b>-160</b> 0)	24 May 1959 (1600–1800)	25 May 1959 (1400-1600)	7 March 1960 (1440-1540)	10 March 1960 (1341-1541)

Table II-11 (continued)

R/T COMMUNICATIONS MEASURES FOR D3 RADIO CONTROL POSITION

AAC	<del></del>						<del></del>		TM 339- Volume	-84 II	June Page	19.0 184	······································
INTERVAL	OVERALL	28.2	16.6 15.6	30.7	13.6 55.7	16.1	33°0 88°0 88°0	21.8	25.42 6.7.	ਰ <b>ੇ</b> ਜੋ ।	19.6	21.7	13.6
スーム	GA	11	11	1.1	11	1.1	11.	1 1	11	1 1	1 1	1 1	8.12
면 면 [6]	MIL	37.6 14.0	1 1	25. 29. 20.	22.1	or I	115.0 57.5	11	11	11	11	11	15.0
ا ہے ۳	VC	14.9	16.6	15.9	13.h 22.8	7·祝	21.7	21.8.6 18.6	15.6 24.5	<sup>구</sup>	19.61	21.7	13.0
	TOTAL	12	777	ми	%~	- 1	8 H	ุ๛๛	75 21	<u>۾</u> ا	7	83 1	82
OF CONTACTS INTERVAL	35	11	11	11	11	1 1	 	11	11	11	11	11	۵
NUMBER OF CONTACTS		7	11	нν	нм	7	러	1 1	11	11	11	11	15
×	AC	<i>n</i> !	<b>ত</b> ান	٦,	Ж <sub>-1</sub>	~ 1	2 ~	МΦ	12 8	<u>۾ ا</u>	1 ~	ខ្ល	65
N OF S TIME	GA		11	11	11	11	11	11	1.1	11	11	1 1	. <del></del>
COMPOSITION OF MUNICALIONS TIME	IC MIL GA	78 100	11	7h 1001	2,2	श्र।	97 73	11	4 1	11	İ	: :	8
CONTRACTOR	VC	81	88	81	22	73 l	<u>5</u> 7.0	999	98	81	18	81	75
TIME SPENT	ON R/I COAS. PER INTERVAL	20	63	иw	ភព	m	20 4	พท	11 <b>8</b>	ž.I	-	큐!	(E) \
	DATE AND TIME	1 Hr. Intervals 15 May 1959 (0800-1000)	20 May 1959 (11,00-1600)	20 May 1959 (1600-1800)	21 May 1959 (1400–1600)	21 May 1959 (1600-1800)	22 May 1959 (1600-1800)	23 May 1959 (0000-0200)	23 May 1959 (1400-1600)	24 May 1959 (1400-1600)	24 May 1959 (1600 <b>–</b> 1800)	24 May 1959 (1400-1600)	7 March 1960 (1440-1540)

Table II-11 (continued)

R/T COMMUNICATIONS MEASURES FOR D3 RADIO CONTROL POSITION

										<u>v</u> O	lume	II		Page 185
OVERALL	20°2 24.5	24.6	16.4	29•9	20.5	16.1	0° 171	19•ी	18.4	77-77	19.6	7.42	21.9	- ^-
GA	53.1	I	ı	1	1	1	ł	i	ļ	1	i	1	36.7	
MIL	1.1	29.0	I	32.2	80.2	10.1	62.3		1	ı	ı	1	ŀ	
VG	14.4	6•गत	16.4	15.9	۴• تا	24.1	19•6	19.4	18.4	7.77	19.6	22.7	16.9	
TOTAL	, 04 27	97	78	7	1,3	2	72	12	<u></u> 8	38	7	23	<i>L</i> 9	
GA	91	1	i	ł	1	1	1		i	ł	1	1	71	
	1 1	Ħ	1	9	77	7	71	ł	ł	1	i	ł	ł	
AC	34,	w	78	ri	8	m	٥.	ដ	<b>8</b>	38	2	ຊ	5	
GA	£3	1	I	ł	1	1	ł	ł	ı	ł	. 1	ł	£43	
ELVI VI	11	£8	ı	95	Ж	Ж	젒	ł	ı	I	i	i	1	
AC	94,	51	100	80	79	79	51	100	9	81	87	9	57	
ON R/T COPP.	22 87	9	18	m	ដ	~ α	អ	, m	i 9	ထ	81	۲-	8	
name Atto Tipes	1 Hr. Int. Cont. 10 March 1950 (1341-1541)	2 Hr. Intervals	20 Kay 1959	20 May 1959	21 Way 1959	21 Kay 1959	22 May 1959	23 May 1959	23 May 1959	2), May 1959	2h May 1959	25 May 1959	10 March 1960	
	ON R/T CO:SI. WITHIN INVERNAL AC MIL GA TOTAL AC MIL	ON R/T GO:G: WITHILK INTERVAL AC MIL GA TOTAL AC MIL GA  PER INTERVAL AC WIL GA TOTAL AC MIL GA  22 60 39 34 6 40 14.4 53.1  18 54 46 16 11 27 22.2 27.8	DATE AID TILE SER INTERVAL AG MIL GA TOTAL AG NIL GA  Hr. Int. Cont.  10 Narch 1950 1341-1541)  Hr. Intervals 6 19 81 - 5 11 - 16 14.9 29.0	DATE AID TILE   28   INTERVAL   AC   MIL   GA   TOTAL   AC   MIL   GA     Hr. Int. Cont.   22   60   39   34   6   40   14.4   53.1     10   March 1950   13   54   46   16   11   27   22.2   27.8     Hr. Intervals   6   19   81   5   11   16   14.9   29.0       15   May 1959   18   100   78   16.4	DATE AID TILE   22	Hr. Interval 8	Hr Intervals	Hr. Intervals	Hr. Int. Cont.   NITHIN INVENTAL   AC   MIL   GA   TOTAL   AC   MIL   GA     Hr. Int. Cont.   AC   MIL   GA   TOTAL   AC   MIL   GA     Hr. Int. Cont.   AC   MIL   GA     Io Narch 1950   13   64   36   16   11   6   11   6   11     Io Narch 1959   13   64   36   12   12   12   14     Io Nay 1959   13   19   81   10   10   10   10   10     Io Nay 1959   13   19   81   10   10   10   10   10     Io Nay 1959   13   14   15   15   15   15   15   15     Io Nay 1959   13   14   15   15   15   15   15   15   15	Hr. Intervals   CON R/T COCKI.   WITHIN INTERVAL   AC   KII   CA   AC   KII   CA     Hr. Intervals   Lib   Lib   Lib   Lib   Lib   Lib   Lib   Lib   Lib     Hr. Intervals   Lib   Lib   Lib   Lib   Lib   Lib   Lib   Lib   Lib     Hr. Intervals   Lib   Lib   Lib   Lib   Lib   Lib   Lib   Lib     Hr. Intervals   Lib   Lib   Lib   Lib   Lib   Lib   Lib     Hr. Intervals   Lib   Lib   Lib   Lib   Lib   Lib     Lib   Lib   Lib   Lib   Lib   Lib   Lib   Lib   Lib     Lib   Lib   Lib   Lib   Lib   Lib   Lib   Lib   Lib   Lib     Lib   Lib   Lib   Lib   Lib   Lib   Lib   Lib   Lib   Lib     Lib	DATE ALTO PROPERTY   DATE   Day 1   Day 1   Day 2   Day 1   Day 2   Day 3   Day 2   Day 3   Day	Hara   Hara	Hateled black   Hateled blac	

CONVAIR-POMONA

R/T COMMUNICATIONS MEASURES FOR D3 RADIO CONTROL POSITION Table II-11 (continued)

AVERAGE NUMBER OF CONTACTS PER PLANE CONTACTED WITHIN INTERVAL	OVERALL	2,00	E 6	00.4	1	1,60	2.67	3.00	000-1	0 C	1	,	\$ 6 * *	ì	2,33	00-1	3.00	ì	1	2.67	00.0			
TOMISER OF CONTACTS	Cγ	1	1	1	ì	l	1 1	ŧ	1	1 1	1		1 1	ı	l	1	ł	I	1	I	1 1			
HAGE NUM PLANE C	MIL	00-6	000	2.00	!	1	11	1	1	ч, 9,7	3 1	-	1,		3.00	), 00	1	I	1	1.00	000			
IAV PEI	VC	!	2.50	1	I	4.60	2.67	3.8	1.00	1	1	,	፠	<b>}</b> !	2.00	i	3.00	ł	1	3.50	2.00			
AVERNIE TOTAL TIME PER FLANE CONTACTED VITHEN INTERVAL	OVERALL	r 2/1	63.6	27.9	1	83.2	73.0	80.7	15.9	7. 7.	٥٠٠		17.00 10.00	745.0	129.9	., 0.,	72.3	1	1	82.6	176.3	•		
STAL TIME MINITIAL	CA		1 1	1	l	ł	1 !	ı	1	I			1	! !	1		1	ı	ł	1	1 1	l		
CONTACTORAL TIME PER FLA. CONTACTED WITHIN INTERVAL	MIL		116.3	27.9	1	ł	1 1	ł	I	7. 7.	(3.0		18	7.577	298.8		1	İ	ł	115.0	2,12.8 L 0.1	47.64		
EAVE COI	VC		37.3	1	l	83.2	0.00	80.7	15.9	1	1 1	1	15.0	03.0	15.51		72.3	}	ļ	7.99	43.4	1	•	
PIZANES VITHIN	TOTAL		m	i ev	i	w	9 m	n 00	·Н	H	Ν		0.1	Ν	۱۳		-1	1.1	 }	m	m	<b>~</b>		:
t Oir P.	MIL GA			ł	1	1	1	1	ł	1	1.	1	ł	i			1	1	1	1	1	I		
NUMBER OF	H		rd rd	l 01	1	I	1 !	1	1	Н	CV	l	1	-	1	1 4	<b>-</b> 1 ∤	1	!	1	~	M		
	J.		۱ ^	1	ł	w	, <b>6</b>	<b>^ ∾</b>	_	۱ ۱	1	1	٥	H	~	l	-	۱ ۱	!	∾	H	1		
	מארדים היואה הייאה	30 Min. Intervals	15 May 1959	(2007-2000)		20 May 1959	(0091-00711)	-	ON Mary 10 Co	(1600-1800)			21 May 1959	(10091-0071)		•	21 May 1959	(mer-mor)		(1500=1800)				

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Table II-11 (continued)

R/T COMMUNICATIONS MEASURES FOR D3 RADIO CONTROL POSITION

······································								~~~			-							TM Vol				-	-	Jur. Pas	e :	1,95 1 <u>97</u>		
AVERAGE NUMBER OF CONTACTS PER PLANE CONTACTED WITHIN THEN VAL.	OVERALL		1.50	9 0	3.00		3.00	2°50	2000	10.7	4.25	5.25	1	1	ŀ	ŀ	1	3.50	1	00	1	1		0°-4	5.5 5.5	3.80	ဝ ကိုး	2.33 33.00
CONTACTE	CA		1	ł	ŀ	ł	l	1	I	ŀ	I	ł	ł	ì	ł	ì	ļ	I			ł	1		18	8 8	i	9,00	8 :
CAGE NUE PLANE C	MIL		ļ	I	I	1	1	1	<b>!</b>	8	1	ł	i	1	1	ł	ł	ļ		1 1	1	ł		80.0	<b>4</b>			1 1
AVE. Per	УС		1.50	1	9.00	1	3.00	2.20	2,00	2.67	4.25	5.25	 	1		1	1	3.50		88	3 1	1		4.12	3.50	3.80	2.50	3°00 8°33
CONTACTED WITHIN INTERVAL	OVERALL		32.7	1	55.8	1	42.2	38.7	37.2	73.0	1,2,7	7-16	i	ł	ļ	1 1	1	68.6		25.56 2.00	1,564			58.6	45.0	58.3	73.6	125.6 53.0
CONTACTED WITHIN INTERVAL	Calledon S		l	I	i	1	ł	I	į	1	i	I	ł	i		1 1				1	ŀ	1 1		i .	43.5	i	318.6	305.7
MORE TOTAL	MIL		ł	ł	ł	1	ŀ	ļ	ì	1	1	ł	ł	1		1	1	1 1		ł	l	1 1	1	42.5	61.0	1	ł	11
AVER CON	ÅC.		32.7		7,48	\ I	0.01	38.7	37.2	73.0	1,2,7	7-76	1	ł		1	ł	68.6	 	74.6	137.7	1 1	•	9.09	40.0		35.7	53.0
PLANES MITHIN	TOTAT.		0	<b>J</b>	~	۱ ۱	บ	Λư	, Ci	m		J		. 1		ı	1	~		m	N.	ı	l	0,	بي د	ư	16	-z+ m
L ~	INTERVAL		1		} }	1	1		!	I			1	1		I	ļ	1 1		l	ŀ	ł	I	ł	Н	1	-	۱ ا
NUMBER OF CONTACTED					1	į			1	1		1 1	}	1		I	I	1 1	}	ł	l	ł	1	ч	m	;	1	1 1
N O	Ç	2	c	7	۰ ا	۱ ۱	١	ለህ	10	1 W	٠	<b>⇒</b>	ţ	1		I	ì	1 °	ų.	m	7	l	ł	<b>0</b> 0	o	u	~	m <sup>w</sup>
	Str. Carrie	30 Man. Int. Cont		(0000-0500)				23 May 1959	(poor-point)			24 May 1959	(mor-mirr)			2h May 1959	(1600-1800)	,		25 May 1959	(0091-0011)			7 March 1960	(140-1540)		TO March 1900	(++(+-++(+)

Table II-11 (continued)

R/T COMMUNICATIONS MEASURES FOR D3 RADIO CONTROL POSITION

	7	*****			*********	^		¥Q.	шстт		36: 100	
CONTACTS D WITHIN	OVERALL	3.00	3.50	1.00	3.27 2.33	3.50	2.67	1.50	3.25	हुन्। ।	3.50	09.4
UNBER OF CONTACTE INTERVAL	S)	11	11	11	1 1	11	11	11	11	11	1 1	11
lear car il	MIL	8.8	11	1.00	3.00	1,000	1.00	11	11	11	11.	11
AVE Per	VC	8,1	7.11 3.50	1.00	3.50	3.00	3.50	1.50 3.00	3.25	5-113	3.50	09*4
AVERAGE TOTAL TIES PER PLANS CONTACTED WITHIN INTERVAL (SECONDS)	OVERALL	84.5 27.9	54.6	30.7	129.9	56.1	82.6 135.2	32.7 55.8	50.5 58.7	78.3	68.6	99.9
MITHIN I	CVS	11	11	11	11	11	11	11	11	11	11	1 1
VESCUE TOTAL TERS PER FLA CONTACTED WITHIN INTERVAL (SECONDS)	MIL	131.7	11	13.8	22.1 298.8	1,00,1	115.0	11	1 1	1 1	11	11
EAV (OD	νC	37.3	117.7 24.6	15.9	16.8 15.5	72.3	7°99 7°99	32.7 55.8	50.55 78.7.	78.3	68.6	6.66
PLANES	TOTAL	77 87	<b>0</b> .⊒	N N	ដូក	~	мw	NΜ	ωn	~	Įα	ıv İ
	IL GALL	11	11	11	11	1 1	11	1 1	11	11	11	11
NUMBER OF CONTACTED	N TH	ผผ	11	Н 8	нн	ч 1	႕크	11	1 1	11	1 1	11
N O	AC	0	タコ	ч ;	200	н 1	84	αm	ων	- 1	1 ~	w I
	DATE OND PIDE	1 Hr. Intervals 15 May 1959 (0800-1000)	20 May 1959 (11,00-1600)	20 May 1959 (1600-1800)	21 May 1959 (11,00-1600)	Z1 May 1959 (1600–1800)	22 May 1959 (1600-1800)	23 May 1959 (0000-0200)	23 May 1959 (11,00-1600)	2½ May 1959 (11,00 <b>-1</b> 600)	24 May 1959 (1500-1800)	25 May 1959 (1400-1600)

Table II-11 (continued)

R/T COMMUNICATIONS MEASURES FOR D3 RADIO CONTROL POSITION

SONTACTS VATTHIN	OVERALL	4.56	4°00 3°86	3.2	ود د	2.33	3•31	3.5	3.0	1°2	2.92	5-43	3.5	1.6	61.4	
AVERING NUFICE OF CONTACES PER PLANE CONTACTED WITHIN INTERVAL	CA.	8	88.11	1	ı	1	i	ł	ł	1	1	1	ı	I	17	
HAGE NU PLANE I	MIL	8.	1 1	3.67	l	3.0	7*0	14.0	3.0	1.	I	I	1	1	i	
AVE Per	AC.	<del>1</del> 9• व	3.78 2.67	2.5	6.5	1,0	3.25	3.0	3.0	2.4	2.92	5.43	3.5	1.6	3.85	
AVEGUE TOTAL TIME PUR FLAME CONTACTED STITIN INTERVAL	OVERALL	61.8	80.7 94.5	78.8	106.5	2°69	67.7	7.95	132.0	9•91	53.7	78.3	9.89	6.66	104.8	
VESCUTE TOTAL TIME PIRE FILE CONTACTION MITHIN INFERVAL (SECONTS)	- VE	43.5	318.6 305.7	Į	1	1	ı	ł	ł	ł	ł	ł	ı	1	624.3	
MACTICAL	MIL	75.2	1 !	106.14	ł	9.96	320.9	1001	187.0	1	1	l	1	}	ì	
NVER	VC	60.2	54.2 59.3	37.3	106.5	15.9	9.91	72.3	58.7	9.91	53.7	78.3	9.89	6•66	6.49	!
PLANS	TOTAL	1.8	10	w	21	m	13	N	2	w	ដ	-	α	w	77	
1 .	INTERVAL	-	ਜਜ	ł	ı	Đ	ł	1	I	I	I	ł	1	I	Н	
NOVERTA OF CONTACT FOR		6	11	m	ł	~	H	н	-3	i	ł	I	i	1	}	
20	C 4	7	0/0	é	77	H	77	н	m	w	13	2	8	w	13	
	שנידה מונג מהגה	1 Hr. Int. Cont. 7 Narch 1960 (1440-1540)	10 March 1960 (1341-1541)	2 Hr. Intervals	20 May 1959	20 May 1959	21 May 1959	21 May 1959	22 May 1959	23 May 1959	23 May 1959	2h May 1959	2h May 1959	25 May 1959	10 March 1960	

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R/T COMMUNICATIONS PRASURES RADAR IA CONTROL POSITION

CHONA	····			2000 Maria da 1000 Maria d		'IM 339-84 Volume II	June 1960 Page 190
TIME NTERVAL	OVERALL	27.3 31.1 37.5 19.6	25.4 21.4 33.2	19.1 13.6 17.8 39.0	13.2	4.000 4.000 4.000 6.000	
AVERAGE CONFACT TERESTALL PLANE WITHIN INTERVAL (SECONDS)	GA.	1111	1111		1111	1111 11	,
AVRFACE PER <b>PLANE</b> (SE	MIL	1111	23.7 20.5 33.2	1111		1111 11	
PER	VC	27.3 31.1 37.5 19.6	27.0	19.1 13.6 17.8 39.0	13.2	25. 63. 45. 85. 85. 85. 85. 85. 85. 85. 85. 85. 8	
	TOTAL	911 6	-1-4-01 00 01-4-01	1883°	0 14v	~d1- 5	
NUMBER OF COMPACTS	GA	0000	1000	00 <b>0</b> 0	0100	0000 00	
MUBER OF	MIL	0000	laam	0000	0100	0000 00	
M	AC	9177	1040	1881	0 1 4 0	241 7.00 m	•
TOF TIME	GA	1111	1111	1111	1111		
COMPOSITION OF	THILL GA	1111	148 861	.1111	1111	1111 11	
COMPOSITION OF COMPOSITIONS OF	AC	0001	- 53 47 -	00000	1000	8888 88	2
% TIME SPENT	ON R/T COM. PER INTERVAL	.s. 19 15 2	'^ 엄켮	21 45 5 5	더 <del> </del> 코 0	6	א
	DATE AND TEXE	30 Min. Intervals 20 May 1959 (1600-1800)	23 May 1959 (1400-1600)	24 May 1959 (1600-1600)	25 May 1959 (1400-1600)	25 May 1959 (1600-1800) 1 Hr. Intervals 20 May 1959	(1600–1600)

Table II-12 (continued)

## R/T COMMUNICATIONS MEASURES RADAR 1A CONTROL POSITION

POMONA			· · · · · · · · · · · · · · · · · · ·					Vo		I	Page 191
TIMENVAL	OVERALL	25.4 24.1	15.2	13.2	24.2 19.8	31.5	ተ•ተሪ	16.7	18.4	23.0	
닭	49	11	1 1	1 I 1 I	11	!	1 .		1	;	
Average Plaie (Se	MIL	23.7	1:	: !	: :	!	23.7	1		1	
PER	VC	27.0	15.2	13.2	24.2 19.8	31.5	28.0	16.7	18.4	23.0	
	TOTAL	4 13	1 <sup>4</sup> 3	01 QV	7. 3	25.	17	उं	7	52	
NUMBER OF COMPACTS PER INTERVAL	es S	00	00	00	00	0	•	0	0	0	
TO REGRAMMA VI REG	MIL	વ યુ	00	00	00	0	<b>†</b> 7	0	0	0	
	AC	27 1	43 21	01 0/	17	25	m	₹	긲	25	
N OF S TEME BVAT.	GA	! !	1 1	1 1	1 1	ł	1	i	i	ŧ	
S CONTOSITION OF CONTONICATIONS TIME WALL	MIL	84	! !	1 1	1.1	1	8	i i	ł	i	•
NO SON	AC	53 10	100	801	100	100	8	700	201	700	
% TIME SPENT	PER INTERVAL	3 14	<sub>ध</sub> य	чν	न्न ४	21	7	15	m	ω	
	DATE AND TIME	1 Hr. Int. Cont. 23 May 1959 (1400-1600)	24 May 1959 (1600-1800)	25 May 1959 (1400-1600)	25 May 1959 (1600-1800)	2 Hr. Intervals 20 May 1959 (1600-1800)	23 May 1959 (1400-1600)	24 May 1959 (1600-1800)	25 May 1959 (1400-1600)	25 May 1959 (1600-1800)	

Table II-12 (continued)

R/T CONTUNICATIONS MEASURES RADAR 1A CONTROL POSITION

	-																											
AVERAGE NUMBER OF CONTACTS PER PLANE CONTACTED WITHIN INTERVAL	OVERALL	1.50	3.67	3.50 0.50	3	. 1	8.	3.33	3,00	5.50		00.00	9.1	2.00	1	00° N	2.50	5.00	8.00	00.1	3.50		9,83	38		4.00		
UMBER OF C CONTACTED INTERVAL	υS	;	;	ŀ	!	ł	1	į		:	;	:	i	ł	:	1	i	;	1	:	•		i i	i i		1	<b>!</b>	
PLANE C	MIL	i	;	ŀ	1	;	2.00	4.50	 8	ł	!	;	;	.1	!	!	1.	;	ŀ	ţ	;			<b>!</b>		88	3	
eva Per	νc	1.50	3.67	3.50	8	;	2.00	00.1	1	5.50	5.33	3.50 3.50	1.00	8.00	1	8°.	2.50	5.00	80.	00-	3.50		S	200		2.00	3.5	
e Per Plane Interval	OVERALL	6.04	0.411	131.2	9.61	!	50.7	71.4	7.66	108.2	72.8	9.19	39.0	26.5	;	38.0	50.5	7.071	6.09	20.3	5.5		٠. و	0.14		2005	104.6	<b>*</b>
	αΛ	;	i	;	i	ł	1	i	i I	!	;	i i	1	i	!	;	!	!	:	;	ł					;	: 1	
	MIL	i	1	i i	1	:	4.74	8	7.66	;	:	1	;		:	1	1	1	1	i 1	:			t 1		4.74	142.0	
CON	VC	6.04	0.411	131.2	19.6	i	54.0	30.0	1	108.2	72.8	67.6	39.0	26.5	1	38.0	50.5	7 021	-0	• 00		•	ć	24.7	1	54.0	30.0	
MESS	TOTAL	-#	m	Q	н	i	Q.	m	ıd	cu.	9	2	ิณ	<del></del>	. !	Q	Q1		٦	 + -	1 (1)			ه ه	1	Q	m	-
NOFELK OF PLANES CONTACTED SITHIN THERMAL		;	į	ļ	;	i	0	Ö	0	0	0	0	0	C	: 1	0	0	c	<b>o</b> c	> <	0	ı		1 1	<u> </u>	0	0	
NUMBER O CONTACTE	MIL	;	;	1		i	-	l Q	Н	0	0	0	0	c	,	0	0	c	<b>o</b> c	> <	0	•		t 1 t 1	ļ	н	OJ.	
	AC	4	· m	CU.	н ,	1	H	۱ -	0	Q	9	5	N	-	; ;	N	a	•	4 æ	<b>t</b> -	4 (1)	ı	`	ه م	J	н	н	
	THE AND TIME	30 Min. Intervals				020 May 1050	(0091-0011)	(2000 2011)		24 May 1959	(1600-1800)		•••	0501 way 30	(0091-0041)	(2)			72 May 1909 (	(mor-mor)			1 Hr. Intervals	20 May 1959	(2007-0007)	23 May 1,959	(1400-1600)	

Table II-12 (continued)

R/T COMMUNICATIONS MEASURES RADAR 1A CONTROL POSITION

······································	1							TM 339 Volvme	-84 TT	June 1960 Page 193	1
AVERAGE NUFFER OF CONTACTS PER PLANE CONTACTED WITHIN INTERVAL	OVERALL	6,14 3.50	0 0 0 0	3.40	3.12	2.67	5.82	2.20	3•.10		
UNINE OF CONTACTE TANKED	ĊΑ	1 1	; ;	1 1	i	;	;	1	i i		
EAGE NUE PLANE O	MIL	1 1	: :	1 1 1 1	;	7.0	1	<b>!</b> ·	i i		
AVEI PER	νC	6.14 3.50	8.00 8.30	3.40	3.12	3.8	5.92	2.20	3.10		
CONTACTED WITHIN INTERVAL	OVERALL	93.3 69.4	26.5 14.2	82.7 53.0	98.5	. 138.4	97.2	40.5	C71.7		
OLAL TIME MITHIN I	GA	1 1	! !	11	:	i	:	: :	l		
MACTED E	MIL	1 1	1 <b>1</b> 1 1	! ! ! !	;	165.6	1	ŀ	:		
DEAV.	VC	93.3 4.69	26.5 44.2	82.7 53.0	93.5	o. 48	97.2	40.5	71.7	•	
ANTHES WITH	NIL GA TOTAL	<b>-</b> 9	ਜੜ	wm	ю	m	.ដ	۲,	æ		
NUMBER OF PLANTS	GA	00	00	00	•	0	. 1	0	0		
CONTAC	H H	00	00	00	0	α	ł	0	0		
	AC	7-9	H.#	νm	ω	н	#	2	ω		
	TENT ON TIME	1 Hr.Int.Cont. 24 May 1959 (1600-1800)	25 May 1959 (1400-1600)	25 May 1959 (1600-1800)	2 Hr. Intervals 20 May 1959 (1600-1800)	23 May 1959 (1400-1600)	24 May 1959 (1600-1800)	25 May 1959 (1400-1600)	25 May 1959 (1600-1800)		·

R/T COMMUNICATIONS MEASURES FOR RADAR 1B CONTROL POSITION Table II-13

-POMONA			•		,	TM 339-81 Volume I	June 1960 Page 194
TIME WIERVAL	OVERALL	18.28 14.29 16.33	12.2	13.7 13.8 13.0	200 200 200 200 200 200 200 200 200 200	20.0 18.2 17.8 18.3	16.8 14.9 13.2
GE CONTACT TIME F WITHIN INTERVAL (SECONDS)	GA	1111	1111		1111	111	16.2
AVERAGE CONTACT TIME PLANE WITHIN INTER (SECONDS)	MIL	17.7	1111	1111	10.9	9.12	138.2 133.1 56.2 1 8 8 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
PER	VC	18.7 31.1 14.9 16.3	17.2 17.2 14.8 16.4	13.8	28.0 28.0 16.3	18.5 17.8 18.3	17.00
	TOTAL	213°	7588 42.	25 17 9	33.38	45 44 36 44 36 44 45 46 46 46 46 46 46 46 46 46 46 46 46 46	32285
OF CONTACTS INTERVAL	СА	1111	1111	1111		1111	1112
l Si	MIL	4	1111	1111	1401	æ ¦ ¦ ¦	- 건크
	AC	12 C 3 O	፟ጜ፞፞፞፠፞፞፞፞ <del>ዹ</del> ፟ <sub>ዾ</sub>	8273	34 <b>%</b> K	%##%	23 23 27
V OF S TIME	GA	1111	1111	! ! ! !	111	11,11	1118
S COMPOSITION OF COMMUNICATIONS TIME	C MIL GA	[경기]	1111		1 ma 1	8111	~8% I
ECONTROL CONTRACTOR	AC	100 76 100	1000	100000	100 1289	1000	97 70 62 62
A TIME SPENT	PER INTERVAL	22 16 35 21	886 Z 7 886 Z	ក្នុន្តន	,	27 149- 37	8 2 2 2 3
	DATE AND TIME	4	23 May 1959 (1600-1800)	24 May 1959 (1400-1600)	25 May 1959 (1400-1600)	25 <b>May</b> 1959 (1600-1800)	8 Narch 1950 (1500–1800)

Table II-13 (continued)

R/T COMMUNICATIONS MEASURES FOR RADAR 1B CONTROL POSITION

т	-1-							<u> Х</u> О	lume I	<u> </u>	Page 19
PINGS NIDSKVAT.		21.3 15.2	15.0	13.0	27.7 18.5	18.8	15.8	17.5	7-77	13.6	20.9
AVERAGE CONTÁCE PLAG PLANE VIENTN INEGRAL (SHEONES)	GA	: :	! !	!!	! ! ! !	: :	16.2	. !	:	:	
AVERACE ( TER PLANE (SEC	MIE	17.7	:	: :	10.5	9*12	17.77 6.60 8.60	17.71	i	ł	10.9
, Heri	VC	21.8	15.0	13.2	28.0	18.3	16.1	17.5	7-41	13.6	21.8
	TOTAL	32	83 39	253	85 69	80.2	87 66	83	122	83	ま
OF COPPACES INFERENTE	CA	! !	! !	1 1	1 1	1 1	21	\$ \$	i	1	
NUMBER OF COPPACES	MIL	a l	t t i i	‡ † į į	٦9	a !	77	<b>4</b>	t I	; ;	_
NG	AC	28	83 39	300	55 57 63	88	25.02	79	155	93	87
N OF C TIME	CA	1 1	1 1	1 1	; ;	1 1	171	<u> </u>	ŀ	ŀ	:
COMPOSITION OF COMPINE TIME WHITH INTERVAL	AC MIL GA	9 :	1 1	1 1	ด้เข	∞ ¦	22.02	'n	ł	! !	· ≄ ·
COSTUTO	VC	88	901	901	88	88	88 63	8	700	100	%
INERS ENTR W	PER INTERVAL	31.	33 16	114 27	19 36	38	32.8	₹.	25	50	27
	DATE AND TIME	1 Hr. Intervals 23 May 1959 (1400-1600)	23 May 1959 (1600-1800)	24 May 1959 (1400-1600)	25 May 1959 (1400-1600)	25 May 1959 (1600-1800)	8 March 1960 (1600-1800)	2 Hr. Intervals 23 May 1959 (1400-1600)	23 May 1959 (1600-1800)	24 May 1959 (1400-1600)	25 May 1959 (14co-16oo)

Table II-13 (continued)

# R/T CCEMUNICATIONS NEASURES FOR RADAR 1B CONTROL POSITION

V:-24			***********					
AVERAGE NUMBER OF CONTACTS PER PLANE CONTACTED WITHIN INTERVAL	OVERALL	5.25 2.20 7.00 2.25	6.43 3.80 4.25 2.50	1,40° 3,40° 7,67° 4,50°	2.50 3.00 5.17	6.00 6.03 6.00	3.12 14.18 2.13 5.7	
UMBER OF CONTACTE INTERVAL	5	1 1 1 1		1111	1111		1117	
CAGE NUM PLANE C	MIL	00.4		1111	1.00	4.00	1.33	
AVA PERR	VC	5.25 1.75 7.00 2.25	6.43 3.88 2.70 5.50	4.40 3.40 7.67 4.50	2.50 3.50 4.00 5.17	6.67 6.33 6.00	200 200 200 200 200 200 200 200 200 200	
AVECARE TOTAL TIME PER PLANE CONTACTED WITHIN INTERVAL	OVERALL	98.2 57.7 104.5 36.7	78.7 65.4 63.1 41.0	60.2 43.0 105.6 58.6	72.5 80.4 85.8	120.2 97.0 87.1 110.0	57.00 562.2 73.00 73.00	
CONTACTED WITHIN INTERVAL CONTACTED WITHIN INTERVAL (STOOMS)	Se Se	1 1 1 1	1111	; ; ; ;	1111	1111	 194.4	
HE TOTA ACTED W	MIL	70.6	1111	1111	10.5	#*•011 	128.2 75.8 175.8	
NOE	VC	98.2 54.4 104.5 36.7	78.7 65.4 63.1 41.0	60.2 43.0 105.6 58.6	727. 97.99 94.0 4.0	123.5 97.0 87.1 110.0	61.0 67.1 19.4 53.2	
SEL	TOTAL	するるな	P 08 0	N N/O 01	\$ W OV O	000 t	211-	
BIR OF PIANES WACTED WITHIN	מארה	1111	1111		1 1 1 1	!!!!	1114	
NUMBER OF CONTACTED	MIL	1411	1111	1111	laai	4111	HMM	
88	AC	<i>ন</i> ব ৩ ব	5 - 5 - 6 - 8 - 8	พพพ	<b>ሪዕተ</b> ተ	ოთთა	1889	
	DATE AND TEME	30 Min. Intervals 23 May 1959 (1400-1600)	23 May 1959 (1600-1800)	24 May 1959 (1400-1600)	25 May 1959 (1400-1600)	25 May 1959 (1600-1800)	8 March 1960 (1600-1800)	

R/T COMMUNICATIONS NEASURES FOR RADAR 1B CONTROL POSITION Table II-13 (Continued)

i (2%		<b></b>							_Volume	<del></del>	Page.	191-1
WITHIN	OVERALL	-	4.00 6.38	5.53	5.57	3.57	6.00	1.58 1.10	5.93	· 64.5	÷ 6	8.5
UMBER OF CONTACTED	ζV		1 1	1 1	1 1	1 :	; ;	12	<b>.</b>	1	:	
AVELAGE NUMBER OF CONTACTS PER PLANE CONTACTED WITHIN INTERVAL	MIL		14.00	; ;	1 1	1.00	00.4	1.33	4.00	i	i .	7.00
AVIELA	VC VC		4.00 6.38	5.53 4.33	5.57	4.00 5.73	6.18 6.15	4.55	90.9	24.9	<b>70.</b>	5.80
AVECOUR TOTAL TIME PAR FIRMS CONTACTED STITHIN INTRIVAL	OVERALL		85.2 96.7	80.3	73.7	98.9 1.60.1	112.8	72.3	103.9	24.3	90.5	123.0
TIME P	SECONDS 2		1 1	1 1	: :		: :	194.4	<u> </u>	i i		ł
CORTACTUD MITHIN INTRIVAL	NT T	777	70.6	1 1	: :	10.5	4.011	75.1	9.07	i 1	ł	76.1
NATION	C e	١	87.2 96.7	80.3	73.7	113.6	113.0	75.5	106.5	£.3	90.5	126.2
EN ES	,,,,,,,	TOTAL	ထထ	15	, ra	) - N	ឌន	44 44	77	19	77	16
NITHIAN OF	7		; ;	1 1 1 1	1 1	: ::	1 1	14	;	:	1	1
NUMBER OF CONTACTED	INT	MIL	<del>ا ا</del>	\$ 1	1	¦	. al	<i>m m</i>	Ħ	i		H
SK SS		AC	<b>r</b> 00	. Z.	ν <b>⊱</b> α	ه م د	ា ជន	워디	ET.	19	77	
		DATES AND STREET	1 Hr. Intervals 23 May 1959	23 May 1959	(1600-1600)	(1400-1600) 25 May 1959	25 :4ay 1959 (1600-1800)	8 Karch 1960 (1600-1800)	2 Hr. Intervals 23 May 1959 (1400-1600)	23 May 1959 (1600-1800)	24 May 1959 (1400-1600)	25 May 1959 (1400-1600)

Table II-13 (continued)

R/T COMMUNICATIONS NEASURES FOR RADAR 1B CONTROL POSITION

·		<del></del>						 Volu	me I	<u> </u>	Page	170
TIME Interval		18.1	16.4		٠	· .		*				-
AVERAGE CONTACT TIME PLANE WITHIN INTER (SECONDS)	СА	1	16.2							•		
AVERAGE PLANE (SE	MII.	27.6	24.5							ï		
PER	VC	17.9	15.4									
	TOTAL	152	153									
NUMBER OF CONTACTS	СА	1	ដ				••					
UMBER OF CONTAC	MIL	4	97									
×	AC	841	125			************						
N OF S TIME	GA	;	œ							•		
COMPOSITION OF STUDIES THE	AC MIL GA	<b>4</b>	76									
CONPOSITION OF CONTUNICATIONS TIME	AC	*	77									·
TNEES EACHT &	ON R/T COMA. PER INTERVAL	38	35		,							
	DATE AND TIME	2 Hr. Int. Cont. 25 May 1959 (1600-1800)	8 March 1960 (1600-1800)	-					_			

Table II-13 (continued)

R/T COMMUNICATIONS MEASURES FOR RADAR 1B CONTROL POSITION

27A		*******		 	 	_Volum	<u> II</u>	Page_	199
AVELAGE NUREE OF CONTACES PER PLANE CONTACED WITHIN INTERVAL	OVERALL	8.00	5.10						
OFFICE OF CONTACTE INTERVAL	YS	i	77						
AGE NUM PLANE C IN	MIL	4.00	77						
AVER PER	VC	8.22	5°-00						
E. FLANE	OVERALL	9.441	83.7						
AVERDOR TOTAL TITE PER FILME CONFACTED MITHIN INTRVAL (SECONDS)	V3	1	194°I					•	
ONTACTION  ONTACTION  ()	MIL	110.4	98.2						
AX O	VC	146.8	76.9	 	 				
PLANES	TOTAL	19	30						
5	CV	1	н						
NUMBER OF CONTACT FOR	MIL	ч	7						
	AC	84	25						
	EACT CHA PENE	2 Hr. Int. Cont. 25 May 1959	8 March 1960 (1600-1800)			and delayer Address, and			

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B/T COLUMICALIONS HEASURES FOR NADAR 2A COUTROL POSITION

-POMONA	•					Volume II	Pa{	ge 200
TIME INTERVAL	OVERALL	24.24.4 14.5.4.4 26.5.4.4	28.7 13.5 17.0 29.8	17.1 27.2 13.0	19.1 15.3 16.5 1.	22.2 27.7 26.5 122.1		22.3
! ⊟	₽5	1111	1110	1111	1111	1111	11	1 1
12 G	MIL	4 4	22.6 12.6 0.5.5 0.5.5	1111	13.0	12.5 12.6 12.6	37.8	15. 2.2.
PER	VC	22.22	30°6 14.9°5 1.0°5 1.0°5	17.1 27.2 13.0	28° 1 15° 3 15° 3 15° 3	15.6 31.9 24.9 122.1	23.0 24.8	26.1
	TOTAL	äァчл	, 당보 <sub>교</sub> ,	성   너 씨	ተራማ።	প্র°ন°	27.9	នដ
NUMBER OF CONTACTS	GA	0000	0000	0,100		0000	00	00
TO RECORD		P04:	о,нок. н	0   00	%0 H o	, , , , , , , , , , , , , , , , , , ,	<b>6</b> 0	24
N	AC	<i>omo</i> -	4 X2066	314°	พพพส	ដីសទី៤	큐크	23
N OF S TIME	L GA	111	1 1111	1111	1111	11,11	11	11
CONTROSTITON CONTROLATIONS		ងទៀ	ፈ አድኋ <b>!</b>	.1111	역 [ 굯 [	14%5	ব্রহ্র	. K. w
CO: TON	AC	67 001	268 F 85 P	8188	16462	<i>ଅ</i> ଜୁନ୍ଧ ଧି	25 57	75 . 97
Theas and %	ON R/T COGA.	17 7 3	o 811-15	7 7 1 su	, 24.25	ፈሄբያ	검꼬	20 9
	DACE AND TERE	30 Min Intervals 15 May 1959 (0800-1000)	20 May 1959 (11,00–1600)	21 May 1959 (11,00-1600)	23 May 1959 (11,00-1600)	25 May 1959 (1400–1600)	1 Hr. Intervals 15 May 1959 (0800-1000)	20 May 1959 (11,00-1600)

Table II-14 (continued)

R/T CORDUNICATIONS MEASURES FOR RADAR 2A CONTROL POSITION

														Volum	e I	<u> I                                   </u>	Pa	ge	501
TUINE INDURANI	OVERALL	17.1	3	18.3	24.2	ट• <b>ा</b>		22.0	23.0	17.0		X• ) <del>1</del>	30.0	,			:		9
TE CONTACT VERSIEN 3	40	1	1	11	ł	ì		ł	I	ı		1 -	I						
AVENAGE CONTACT TIME PLANE WITHIN INTERN (SECONDS)	MIL	I	l	13.0 13.0	32•3	1,2.6		19•1	74.9	ľ	•	13.0	33•4						
PER	VC	17.1	9	23.h	20-17	1-11		23.4	26 <b>.</b> 4	17.0		22.6	28.9						
	TOTAL	젉.	#	828	ሂ	ነዝ		27	777	20		8	38						
OF COMPACTS	GA	0	0	00	c	00		0	0	0	••	0	o,						
NUMBER OF		0	0	۰ <sub>۲</sub>	α	러		٥	, £1	0		8	٥						
Z	AC	91	-7	0 <u>1</u> %		15		18		50	) i	16	53						
N OF C 'PINE	GA	1	ı	1 1		1 1		ŀ	ł	l			1						
CONPOSITION OF CONTOUNING OF C	AC MIL GA	1	ł	37	} -	స్తేయ		53	13	. 1		33	%						
COCOM	VC	901	001	63	} {	25.		77	<u>ಕ</u>	5	}	19	77				•		
were spent	ON H/T COM4. PER INTERVAL	80	<b>N</b>	10	3	7,52		٥٠	25	\ \ \	ņ	አ	16				-		
	DATE AND TIME	Hr. Int. Cont.	(0091-00/11)	23 May 1959	(10001-00011)	25 May 1959 (1400-1600)	2 Hr. Intervals	15 May 1959	20 May 1950	/// Far: 03	21 May 1959	23 May 1959	2£ May 1050			-	-		

Table II-14 (continued)

N/T CONTINCANTIONS INCHINES FOR INDIAN 2A CONTRION POSITION

. 54. 					, Aoj	ume II	Page 202
WITHIN OVERATI	OVERTICAL	7 N 4 6	2.33 2.33 3.33 3.33	3.00	47774 0000 0000	12.20 1.30 1.31 1.00 1.00 1.00 1.00 1.00 1.0	1,-20 2,0 1,-71 1,-83
ONT ACTES	<b>1</b>	1 11		1111		1111	11 11
AVEACES NUMBER OF CONTACTS PER PLANE CONTACTED WITHIN  TAL  OVERAL	FIL L	0,144	니라다 <b>!</b>	1111	9.0 11.0	1.33	74 m i
PER.	JV	000	7.50 3.0 11.50	3.00	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	6.00 1.00 1.00 1.00 1.00	3.50 1.0 7.0 2.0
PARC FLAMB	OVERALL	75.7 121.4 44.5 65.1	90 17.3 90 90 90 90 90 90 90 90 90 90 90 90 90	91.2 27.2 39.1	90 76.53 144.79	71.1 49.9 72.8 122.1	84.1 58.2 105.0 16.1
NATE OF COLUMN AND ADDRESS AND	S.	1111	1111	1111	1111	1111	11 11
AVERAGE FORD FIRE PER TIL CONTACTED MITHEN INTERVAL (SECONIS)	ME	99 21.5 31.5 5	21.6 50.0 7.5		29.0 11.3.0	56.2 29.9 12.6	99.0 37.8 16.6 7.5
AVEL	VC	66.6 121.4 99.2	229.7 144.6 30.2 69.5	91.2 27.2 39.1	75.5 76.5 60.4 14.0	93.5 79.9 82.9 122.1	80.3 99.3 182.8 53.8
TIMES WILLIAM VAL	TOTAL	<b>খ</b> নন0	ਅ ተ	мІнн	мнма	アンプーゴム	ww 60
ACT OF THE ACT THE SACRET SACR	Ş	0000	0000	0100	.0000	0000	00 00
NONTACTION CONTACTION INTEREST	MIL	нонн	〇七で尺	0100	4040	MWHO	
	AC	мнон	<b>~</b> ~ ~ <b>~</b>	wluu	0 H 0 0	ผผพผ	ሰው ኮኮ
	THERE AND TIME	30 min. Intervals 15 May 1959 (0800-1000)	20 May 1959 (1400 <b>-1600)</b>	21 May 1959 (1400 <b>-1600)</b>	23 May 1959 (11,00-1600)	25 May 1959 (1400–1600)	1 Hr. Intervals 15 May 1959 (0800-1000) 20 May 1959 (11,00-1600)

Table II-14 (continued)

B/T COLEMBICANTONS HEASURES FOR RADAR 2A CONTROL POSITION

PER PLANE CONTACTED INTERVAL	OVERALL AC MIL GA OVERALL	91.2 5.33 - 5.33 66.3 4.00	86.9 3.33 9.0 14.75 70.6 2.25 11.0 14.0	86.4 5.67 2.0 - 3.57 89.2 2.40 1.0 - 2.17	1	3.25	85.0 5.00 5.00	77.9 2.71 10.0 4.33	95.0 4.14 1.80 3.17	•	
CONTACTIOD WITH IN INTIGVAL (SYCONIS)	AC MIL GA	91.2	72.8 129.0 <b>-</b> 52.5 143.0 <b>-</b>	115.5 64.6 98.6 42.6	84,1 58,2	- 4.84 8.3LI	85.0	61.2 136.0	119.9 60.2		
CONTACTED ATTHIN	AC MIL GA TOTAL	13 00 00	3 1 0 4	23 11 12 23	ν ο 8	7 10 0 11	7 0 0 7	7 2 0 9	7 5 0 12		
	DATE AND TIME	1 Hr. Int. Cont. 21 May 1959 (11,00-1600)	23 May 1959 (11,00-1600)	25 May 1959 (11,00 <b>-1</b> 600)	2 Hr. Intervals	20 May 1959	21 May 1959	23 May 1959			

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TABLE 11-12
NAMES TO COLUMN TABLES TO TABLE TO TABLE TO COLUMN TO COLUMN TABLES TO TABLES TO TABLES TO COLUMN TABLES TO COLUM

					Volume II	Page 204
TIMESAVI. OVMHAIL	25.4. 17.8 24.1 28.3	37.6 24.0 21.2 14.1	22,251 25,251 25,258	ት የሚያ የሚያ የሚያ የሚያ የ	21.9 26.1 29.2 27.1	19.2 21.0
PLANE STREET INTERVAL  PLANE STREET INTERVAL  (SECONDS)  MIX. GA OVERALI	1111	1,7.2	26.8	55.2	11 12.2	1 56.8
AWARATE FIGURE PLANS (C)	27.5	22.8	27.3		27.5	17.0
Na.i	22.6 17.0 24.1 28.3	37.6 24.0 20.6 27.8	20.2 17.8 26.3 16.8	33.6	19 26 12 28 24 25 25 25 25 25 25 25 25 25 25 25 25 25	19
TOTAL	ት የ የ	248 <i>c</i>	27 20 17 3	13 5 5 7	25 34 24 24 24 24 25	17 20
NUMBER OF COPPACES PER INTERPORT MIL GA	1111	1114	~111	-=	11 14	~ 1
NUMBER OF	0111	1120	1000	1111	01 1-	ထေလ
VC	FR37	ដ្ឋអ្ន	ይ፞፞፞፞፞፞ጟኯ፟፟	니크 [ 뭐	88 큐유	37
Y OF S TTPE RVAL GA	1111	15.3	2111	1000.0	11 13	8.8
g composition or commissions riper while everythm	61.0	26.9	22.7		36.1 138	15.1
DV EURIA CONTIUM S COM	39.0 100.0 100.0	100.0 100.0 73.1	81.1 75.3 92.0 100.0	100.0	61.1 100.0 100.0 57.1	79.0
% TESS SPART ON IA'T COSS.	23 15 24.0 28.0	27.1 28.0 21.0 17.2	31.9 1.8.1. 9.3.8	1.1 7.0 12.3 21.0	17.7 20.2 27.5	25.1
PATTS ATTO PETERS	30 Min. Intervals 21 May 1959 (1400-1600)	21 May 1959 (1600-1800)	23 May 1959 (11:00-1:600)	23 May 1959 (1600-1800)	1 Hr. Intervals 21 May 1959 (1),00-1600) 21 May 1959	23 May 1959 (1400-1600)

Table II-15 (continued)

P/T CO: MUNICATIONS MEASURES FOR RADAR 2B COMTROL POSITION

							 			Volume II	Pare 2	05
TEME INTERVAL	OVERALL	30°5	24.0	28.2	20•6	32,1			_	٠		•
F. CONTACT WITHIN I	GΑ	55.2	1	47.2	26.8	55.2						
AVERAGE CONTACT TEST PLANE WITHIN INTER (SECONDS)	MIL	11	27.5	37.8	17.5	ł						
PER	VC	25.5	23.3	26.6	21.1	27.0						
	TOTAL	17	27	61	<i>19</i>	55				٠.		
NUMBER OF CONTACTS	GA	14	. 1	н	N	7		••				
NUMBER OF	MIL	11	٥	2	21	ł			•			
	AC	~ 면	917	53	55	18						
N OF S TIME	GA	10.01	l	2.7	3.9	31.3			<del></del>			
COMPOSITION OF	AC MIL GA	11.	18.7	15.3	12.3	. 1						
S COMPOSITION OF COMMUNICATIONS TIME	AC	0.001	81.3	81.9	83.8	68.7						
TIME SPENT	ON R/T COGA. PER INTERVAL	•	18.9	23.9	23.0	10.1						
	DATE AND TIME	1 Hr. Int. Cont. 23 May 1959 (1600-1800)	2 Hr. Intervals	21 May 1959	23 May 1959	23 May 1959						

Table II-15 (continued)

R/T CONDAINICACTIONS NEACTINES FOR NADAR 2B CORPROL POSITION

											·		) † IMI			سسه. عدان	34		
OVERALL		5.33 1.33	8 Q m m		พ พูฟ	8년	, î	2 8 5 4 7 4	01°6	<u> </u>	888	2.17	-	1.83 2.7.5	1	3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00	4,38	8	
CA		11	1 1		1 1	18		8 1	1 1		11	8 1		11		18	8	3 1	
		1,.50	1 1		1 1	88		88	8.00	l	1 1	1 1		1,.50		3.50	5	88	
VC		7.00	86	200	χχ κ. ν.	184	701	7.67 1.67	× 4.	3	2.00	2-17		8.5	!	5.67 1.73		200	
OVERATA		135.2	72.4	×0.4	122.0	105.8	010	8,411	က္က ( ကို (	<b>₹</b> 00€	19.9	220.9	:	106,1		165.3		95.9	
CINOS:		1	1 1	I	l	115	7.14	53.6	1	ŀ	1 1	220.9		1	١.	17.2	•	1 23.6	
NIT.		123.8	1 1	i	i	1 1 8,5	150.5	25. 6. 8. 8. 8.	34.2	ł	1 1	1 1		123.8	1	132.2	, :	68°2 34°2	
AC		158.0	72.4	98•9	122.0	125.8	37.0	155.2	986 80 80	50.5	19.9	장 장 [ -				165.3		11,2.9	
A WOOM	101/10	m.	m=	<b>-</b> 37	-17	-1-1-1	w	w	vrv	Н	r-1 °	v H v	)	9	_	9 ~	•	ωw	
TERVAL	177	1	1 1	I	ł	11	н	Н	1 1	i	1	<b>1</b> -1	i	ł	1	۱,	i	нІ	
Ä	777	N	1 1	1	1	1 4	Н	الم	α н	•	1	1 1 1	1	Ø	1,	10	ı	αн	
Ç	SE SE	н	กส	4	7	a w	m	m	mä	rH	н¢	N 1 V	0	4	2	نہ وہ	<b>‡</b>	พส	
	DATE AND PLINE	30 Min. Intervals 21 May 1959	(0091-0011)		21 May 1050	(1600-1800)		23 May 1959	(0091-0011)		23 May 1959	(1600–1500)		1 Hr. Intervals	(0091-0071)	21 May 1959	(mor-nor)	23 May 1959	
	INTERVAL ACT ALL GA OVERALL AC MIL GA	OVERALL AC MIL GA	AC NIL GA TOTAL AC NIL GA OVERALL AC MIL GA  1 2 - 3 158.0 123.8 - 135.2 7.00 4.50 -	1 2 3 158.0 123.8 135.2 7.00 1.50 1.50 1.50 1.50 1.50 1.50 1.50 1	NUMBERVAL   AC NIL GA OVERALL AC NIL GA   AC NIL GA	1 2 3 158.0 123.8 135.2 7.00 4.50 1 1 2 3 76.9 1 23.8 122.0 23.8 1 22.0 3.25 1 1 2 0 1 1 2 0 1 1 1 2 0 1 1 1 2 0 1 1 1 1	1   2   3   158.0   123.8   135.2   7.00   1.50	INTERVALE   AC NIL GA OVERALL   AC NIL GA	1   2   3   158.0   123.8   135.2   7.00   1.50	1   2   3   158.0   123.8   135.2   7.00   4.50   1.50	1   2   3   158.0   123.8   135.2   7.00   1.50	1   2   3   158.0   123.8   135.2   7.00   1.50	AC NIE OA TOTAL   AC NIE OA OVERALE   AC NIE OA OVERALE	1   2   3   158.0   123.8   135.2   7.00   1.50   1.53   1.53   1.54   1.54   1.55	1	1	1	1	1

Table II-15 (continued)

R/T COMMUNICATIONS MEASURES FOR RADAR 2B CONTROL POSITION

**********	4-					<del> </del>	TM 339-64 June 1900 Volume II Page 207
AVERINE NUMBER OF CONTACES PER PLANE CONTACTED WITHIN INTERVAL	OVERALL	1.67 2.43	14.58	1,-69	06*9	2.20	
UMBER OF ( CONTACTED INTERVAL	ď	00.17	1	1.8	2•00	7,00	
CAGE NUM PLANE C IN	MIL	11	1,.50	3.50	×20	ł	·
AVE Per	VC	1.67	09°7	5•30	6.88	2.00	
AVEGAGE TOTAL TIME PER PLANE CONTACTED WITHIN INTERVAL	OVERALL	51.5 78.9	1.011	132.6	125.8	70.7	•
VERNIE TOTAL TIEE PER PLA CONTACTED STRIN INTERVAL (SECONDS)	CALINOSTIS	220.9	1	47.2	53.6	220.9	
MOETOFA TACTIED W	MIL	11	123.8	132.2	85.2	i	
AVER	VC	51.5	107.1	141.2	115.0	0,1%	
ANTIS	TCTAT.	m 2-	ដ	ដ	ជ	ಇ .	
Id 40	INTERVAL	18	ı	н	Н	ч	
NUMBER OF PLANES CONTACTED WITHIN			8	~	8	1	
ÞŌ	C V	e mo	20	2	æ	٥	
	Birth City Charles	1 Hr. Int. Cont. 23 May 1959 (1600-1800)	2 Hr. Intervals	21 May 1959	23 May 1959	23 May 1959	

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Table II-16
B/T COMMUNICATIONS MEASURES FOR STATION POSITION D

_
Intervals
Two-Hour

KA								Volu	ıme II	P	age 208
TIME INTERVAL )	OVERALL	29.3	56.6	35•9	27.8	62•1.	. 37.9	3 <b>6.</b> 5	37.2	29•1	7.7
2 E 8	GA	18.3	37.5	7.9	6•6	101.5	63.9	115.6	22.5	I	31.6
erace Plane (s	Ä	26.5	23.7	36.3	24.8	64.1	39°3	33•¼	36.2	28.6	6.9
	AC	31.7	52.0	9•6	37.0		28•14	38.9	40.3	31.4	13.3
OF CONTACTS INTERVAL	TOTAL	86	89	*	32	55	73	£4,	19	%	147
OF CONTACTS INTERVAL	S.	<b>4</b>	٠.	н	w	m	r!	н	7	1	H
NUMBER O	MIL	84	57	877	ET.	<b>F</b> 7	9	19	28	31	777
	AC.	91	4	2	큐	٥.	21	23	53	w	N
N OF IS TIME	Ą	9	77	7.0	9	6	m	m	7	1	6
COMPOSITION OF MACHINE TIL	M	77	47	95	8	£	æ	70	<u>1,5</u>	85	78
CONTROSTITION OF CONTRIBUTE TIME	AC	20	12	-7	58	10	12	57	77	15	7
The Spent	PER INTERVAL	ניו	25	26	7.5	747	38	22	32	15	w ·
	DATE AND TIME	20 April 1959 (1400-1600)	15 May 1959 (0800-1000)	20 Xay 1959 (1400-1600)	20 May 1959 (1600-1800)	21 May 1959 (1600-1800)	22 May 1959 (1600-1800)	23 May 1959 (0000-0200)	23 May 1959 (1500-1600)	23 May 1959 (1600 <b>-1</b> 800)	24 May 1959 (1400-1600)

Table II-16 (continued)

R/T COMMUNICATIONS MEASURES FOR STATION POSITION D

(Two-Hour Intervals)

JNA.								Volu	me TT	Pa	ge 209
ontacts Within	OVERALL	3.77	h.00	3.29	2.13	3°06	3•32	3.91	1,007	2.77	2 <u>.</u> 47
AVERAGE NUMBER OF CONTACTS PER PLANE CONTACTED WITHIN INTERVAL	GA	1.00	1.40	00 •1	2.50	9°0	1.00	1.00	1.33	1	1.8
RAGE NU PLANE I	MIL	3.43	7.12	3•69	1,62	3.91	۰۲ 00°	3.80	3.1	3,38	2.59
AVE	γC	5.15	1.00	2.33	8°-80	1.50	2.00	1,.60	29.6	1,00	2,00
AVEGREE TOTAL TIME PER PLANE CONTACTED WITHIN INTERVAL (SECONDS)	OVERALL	112.4	107.1	108•1	59•3	189.6	125.7	143.2	151.4	80•3	1,61
VEGAGE TOTAL TIME PER PLA CONTACTIO MITHIN INTERVAL (SECONIS)	GA	48.3	52.5	7.9	271∙8	304.5	63.9	45.6	30•0	I	31.6
GAGE TOP STACTED (S	MIL	2-06	168.8	135.9	1001	250•4	157.3	127.0	112.5	110.8	17.9
AVE	AC	182.3	52.0	22.1	103.5	65	56.9	178.9	389•1	31.4	26.5
TAMES THIN T	TOTAL	56	71	17	75	. 81	22	ជ	भ	ដ	19
TA OF PLANCTED SITE	\S	4	w .	н	N	H	н	н	m	1	н
NUMBER OF PLANES CONTACTED WITHIN TAMESWAL	111	쿼	8	ដ	œ	Ħ	ኢ	w.	0/	<b>∞</b>	17
N O	AC	ω	<b>4</b>	m	w	9	9	<b>w</b> .	m	w	ਜ '
	THE AND TIME	20 April 1959 (14,00-1500)	15 May 1959 0300-1000)	20 Kay 1959 (11,00-1500)	20 Nay 1959 (1600-1800)	21 May 1959 (1600-1300)	22 May 1959 (1600-1800)	23 May 1959 (0000-0200)	23 May 1959 (11:00-1600)	23 May 1959 (1600-1800)	24 May 1959 (1400 <b>-1</b> 600)

金属工业业

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Table II-17 (continued)

### R/T COMMUNICATIONS MEASURES FOR STATION POSITION C

### (Two-Hour Intervals)

								Volu	ume II	<del>.,.,</del>	Page,	210
AVERAGE CONTACT TIME PER PIANE WITHIN INTERVAL (SECONDS)	OVEHALL	28.0	91.1	123.7	39•9	7° 7°	16.4	10.3	25.9	20.7		
AVERAGE CONTACT TIME ER PIANE WITHIN INTER' (SECONDS)	СА	30.8	21.6	201.7	22.0	16.5 7.	18.7	17.8	10°0	33.1		
VEFAGE PIANE (S	MIL	30.2	16.7 161.9	23.8 112.6	ኢ ሊ	33.1	12.7	53.1	26.9	31.5		
A PER	AC	17.9	16.7	23.8	22.2	35.2	I	42.3	19•3	13.9		
ACTS	TOTAL	R R	ส์	œ	50	9	ω	19	17	ω		
OF CONTAI	ક્ક	97	w	α	~	ਜ	w	9	н	н		
NUMBER OF CONTACTS	MAT	7,5	<b>-</b>	w	ដ	N	m	7	77	N		
	AC	9	N	н	N	m	1	9	7	w		
ON OF S TIME	CA	×	80	듸	777	7.	72	77.	6	C3		
COMPOSITION OF TUNICATIONS TIMESTAL	AC MIL GA	52	89	57	677	9	53	53	23	88		
COMPOSITION OF COMMUNICATIONS TIME	AC	12	m	N	t~	877	i	33	18	77		
% TINE SPENT	ON R/T CO:M. PER INTERVAL	12	1.8	77	Ħ	m	8	7	9	cv.		
	DATE AND TIME	20 April 1959 (11,00-1600)	15 May 1959 (0800-1000)	20 %ay 1959 (11,00-1600)	20 May 1959 (1600-1800)	21 May 1959 (11,00-1600)	21 Nay 1959 (1600-1800)	22 May 1959 (1500-1800)	2½ May 1959 (1½00–1600)	2h Kay 1959	(000T-000T)	

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II .	Page	211

Table II-17

R/T COMMUNICATIONS MEASURES FOR STATION POSITION C

		- , <del> </del>						Volum	ne II	Parce	211
AVERAGE NUKBEK OF CONTACTS PER PLANE CONTACTED WITHIN INTERVAL	OVERALL	1.82	1.27	1,60	1.82	1.20	9 <b>°</b> t	1.90	2-43	<b>5°</b> 00	
UMBER OF CONTACTE INTERVAL	¥5	2•00	1.00	8.0	1.40	1.00	1.25	1.50	1,00	1,00	
HAGE NUM PLANE C	MIL	2.14 2.	1.40	1.67	2,75	1.00	3.8	3.50	3.00	00°2	
AVE PER	QC	1.20	2•00	1,00	1,00	1.50	ı	1.50	2.00	2•50	
AVERNOE TOTAL TIME PHE PLANE CONTACTED MITHIN INTERVAL (SECONDS)	OWERALL	51.1	115.9	197.9	72.6	43.6	26.3	76.7	63.1	1, <b>-</b> Σ₁1	•
VEGNIE TOTAL TIME PER PLA CONTACTIO MITHIN INTERVAL (SECONDS)	Ş	61.6	21.6	403•3	72.7	46.5	23 <b>.</b> 4	26•7	10.04	33.1	
TACTED !	MIL	64.8	226.5	187.6	94.6	33.1	38.1	203.5	80.8	62•9	
AVE	VC	21.5	33.4	23.8	22.2	52.8	1	63.1	38.6	34.8	
PIANES HITHIN AI.	TOTAL	2τ	ជ	ın	ជ	w	ın	of Of	~	77	
1 5	Š	w	w	rł	w	н	<b>4</b>	7	ч	r-l	
NUMBER OF CONTACTED	MIL	7	w	m	77	<b>%</b>	н	, ,	7	<b>ન</b>	
	VC	w	Ħ	н	N	Ø	ł	4	N	N	
	BULL CNV SERVE	20 April 1959 (11:00-1500)	15 May 1959 (0800-1000)	20 Nay 1959 (11,00-1600)	20 May 1959 (1600-1800)	21 Nay 1959 (11,00-1600)	21 May 1959 (1600-1800)	22 May 1959 (1600-1800)	2h May 1959 (1h00-1600)	2h May 1959 (1600-1800)	

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Table II-18

R/T COMMINICATIONS PERSURES FOR STATION POSITION B

### (Two-Hour Intervals)

1								volu Volu	ne_II_		we 212
AVERAGE CONTACT ER PLANE WITHIN I (SECONDS)	OVERALL	28.9	19.6	39.4	38. 1.	38.7	7,60	1	r6•61		75.1
	GA	28.9	19•6	39 <b>•</b> 4	37.3	38.7	48.1	1	49.9	25•4	75.1
	ij	i	i	1	39 <b>•</b> 8	1	<b>੪•</b> ਜੋ	ł	1	1	1
	AC	Ĭ	l	I	1	ı	i	ł	-	15.6	i
NUMBER OF CONTACTS PER INTERVAL	TOTAL	6	N	m	21	ភ	21	ł	ਜੋ	ដ	10
	G.A	0	N	m	ω	<del>i</del>	Ħ	1	큐	គ	S
		l	1	1	, 17	I	н	ŀ	1	!	1
	AC	l	ŀ	i	1	I	1	ļ	i	~	1
NOF TIME	G.A	001	100	001	65	8	56	1	100	776	100
2 COMPOSITION OF CONTOUNICATIONS TINE	ML	I	I	ı	<b>%</b>	ŀ	w	I	l	1	
	AC	i	1	ł	ł	1	i	1	ł	9	
% THE SPENT		17	. 0.5	N	٠.	ω .	ω	0	10	α	10
	DATE AND TIME	20 April 1959 (11,00-1600)	20 Kay 1959 (1½00-1600)	20 May 1959 (1600 <b>-1</b> 800)	21 May 1959 (11:00-1600)	21 May 1959 (1600-1800)	22 May 1959 (1600-1800)	23 %ay 1959 (0000-0200)	23 May 1959 (1030-1230)	23 May 1959 (1400 <b>-</b> 1600)	23 May 1959 (1600–1800)

Table II-18 (continued)

R/T COMMUNICATIONS MEASURES FOR STATION POSITION B

(Two-Hour Intervals)

IONA				 		 Volu	ne II	Page	213
AVERAGE CONTACT TIME PER PLANE WITHIN INTERVAL (SECONDS) C MIL GA OVERALL	34.2	,	0.00						
AVERAGE CONTACT TIME R. PLANE WITHIN INTERV (SECONDS)	34.2	•	0.09						
VERAGE PLANE (S	1		}						
PER PER			1						
TACTS AL TOTAL	'n		ਜੋ						
OF CONTAC INTERVAL GA	2	<b>)</b>	77						
NUMBER OF CONTACTS PER INTERVAL HIL GA TOT	1		i						
AC	1		ł						
% COMPOSITION OF COMMUNICATIONS TIME WITHIN INVERVAL ACCORDANCE OF MIT. CA	COL		100						
% COMPOSITION OF COMPUTATIONS TIME WITHIN INFERVAL	1		1		-				
CO. % CO. SULTH		<u> </u>	1			 			
% TIME SPENT ON R/T COM.	ren in Savan	<b>J</b>	21						
מורנות מוניי	DATE AND LIME	(1100-1600)	2½ Xay 1959 (1600-1800)						

Table II-18 (continued)

R/T COMMUNICATIONS MEASURES FOR STATION POSITION B

# (Two-Hour Intervals)

NA				<del></del>				Volu	ie II	Pag	e 214	1
TUMBER OF CO CONTACTED INTERVAL	OVERALL	1.29	1,00	1.50	n) (	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	8	I	1.75	1.20	1, 25	1.25
	ď	1.29	1.00	1.50	η <b>.</b>	7°10	0	1	1.75	1.25	1.25	1.25
	MIL	I	1	i	2 <b>.</b> 00	I	1.8	l	ł	ł	ı	1
	ΑC		1	1	i	l	1	ŀ	I	8.	I	1
SE PLANE FRIVAL	OVERALL	37.2	19.6	ం స్ట్ర	50.es	54.2	1,6.2	ı	87.3	55.5 5.55	93.8	h2.8
CONTACTO TOTAL TOTAL PARE FLAME CONTACTED MITHIEN INTERVAL (SECONDS)	5	37.2	19.6	59.0	42.6	571.2	1,8,1	ł	87.3	65.5	93.8	1.2.8
MAN TOWN TACTED 1	MIL		I	I	79.7	ľ	24.8	1	1	ł	ı	
NVER	VC		I	ţ	1	.1	i	1	i	15.6	1	1
LANES TTHIN	TOTAL	7	N	N	o.	10	21	1	ω	10	∞ .	.7
P	TNTFILVAL	2	8	8	7	9	ដ	1	ω	ထ	ω	77
NOTELL OF CONTACTED	N L	1	i	l	0	I	н	1	1	1.	ŀ	I
ZO	Ç.V	1	. 1	ł	1	ł	I	1	1	C)	ł	1
		20 April 1°59	20 May 1959 (11,00-1600)	20 May 1959 1600-1800)	12 May 1959 (0091-0041)	21 May 1959 (1600-1800)	22 May 1959 (1600-1600)	23 May 1959 (0000-0200)	23 May 1959 (1030-1230)	23 May 1959 (11,00-1600)	23 May 1959 (1600-1300)	24 May 1959 (1400-1600)

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Table II-18 (continued)

R/T COMMUNICATIONS MEASURES FOR STATION POSITION B

(Two-Hour Intervals)

ONA			TA 339-84 Volume II	June 1960 Page 215
AVERAGE NUMBER OF CONTACTS PER PLANE CONTACTED WITHIN INTERVAL	OVERALL	7. · · · · · · · · · · · · · · · · · · ·		
	GA	75.		
RAGE NUI PLANE ( I	MIL	ı		
AVE	VC	1		
ER PLANE TERVAL	OVERALL	0.501	integent tils i sammel 427 dettin traktivense selegense gler	
AVERAGE TOTAL TIME PER PLANE CONTACTED WITHIN INTERVAL	CA	105.0		
MIACTED Y	MIL	1		
OS CO	VC	1	,	
TES TIN	TOTAL	∞		
NUMBER OF PLANES CONTACTED MITHER	3	ω		
NOTES	AC MIL			
	Ę.	· · · · · · · · · · · · · · · · · · ·		
	The case and	21, May 1959 (1600–1800)		

#### B. TIME-RELATED DATA CHARTS

A pictorial display of the data presented in the preceding tables is given in the following six cycles of charts.

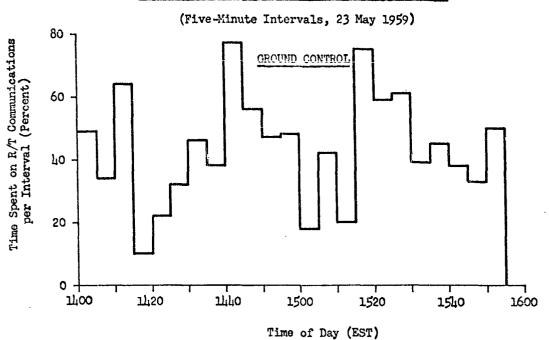
#### 1. Sequential Variation in R/T Communications Load

Much has been said by controllers and communicators about the large variations in R/T communications loads which they experience. Knowledge of these variations is important because the design of voice communications systems and the assignment of control areas is more dependent upon peak communications loads than upon average communications loads.

Figures II-1 to II-6 illustrate the variation found in each of the positions studied. The percent of time spent on R/T communications is plotted for each of twenty-four consecutive five-minute intervals. The time period selected in each case was 1400 to 1600 EST.

Figure II-1

#### SECUENTIAL VARIATION IN R/T COMMUNICATIONS LOAD



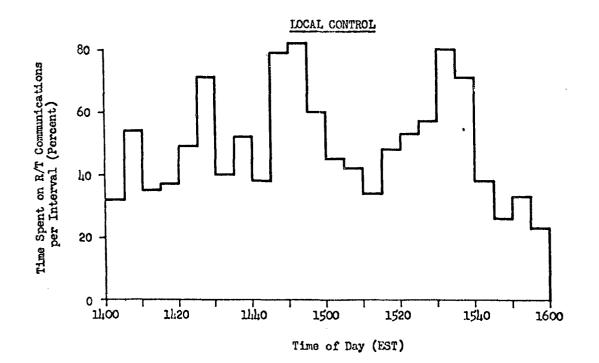
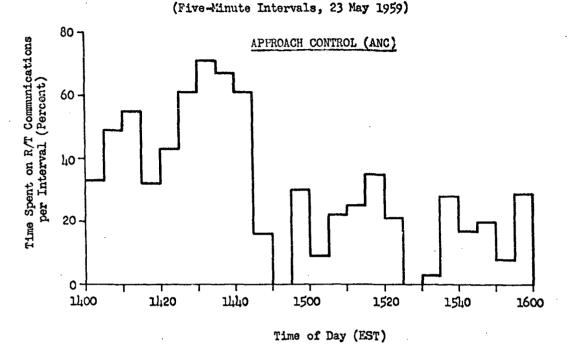
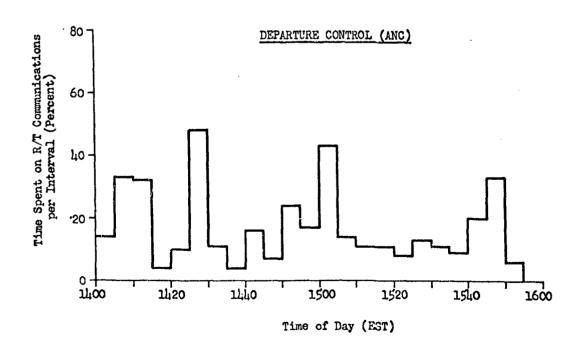
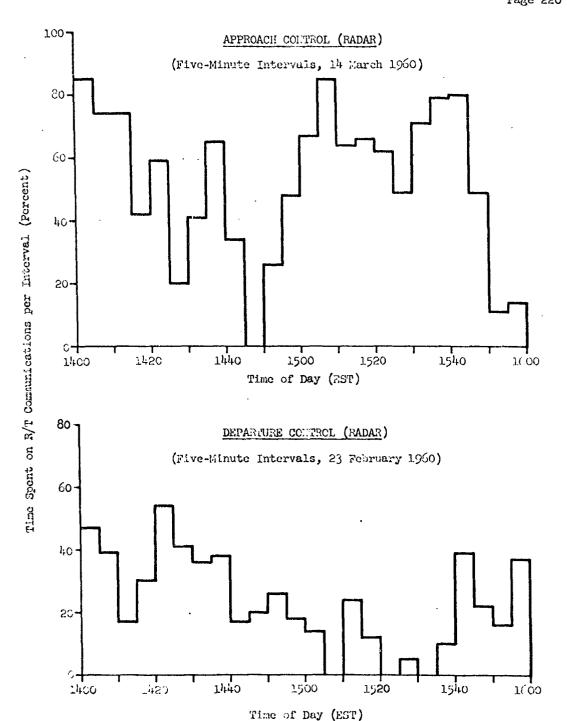


Figure 11-2
SEQUENTIAL VARIATION IN R/T COMMUNICATIONS LOAD





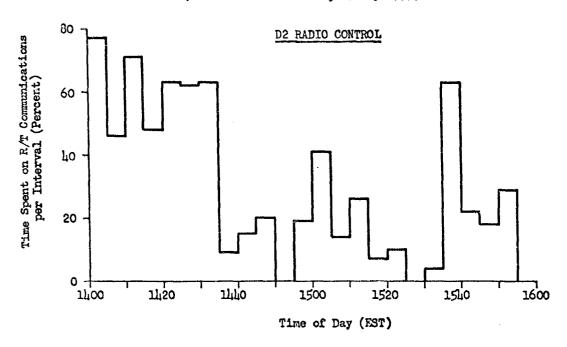
# SEQUENTIAL VARIATION IN R/T COMPUNICATIONS LOAD

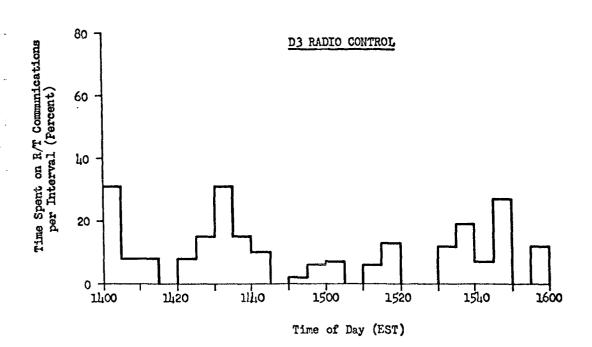


# Figure II-4

#### SEQUENTIAL VARIATION IN R/T COMMUNICATIONS LOAD

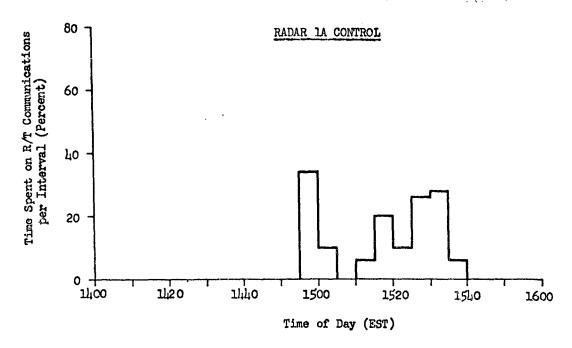
(Five-Minute Intervals, 23 May 1959)





# SEQUENTIAL VARIATION IN R/T COMMUNICATIONS LOAD

(Five-Minute Intervals, 23 May 1959)



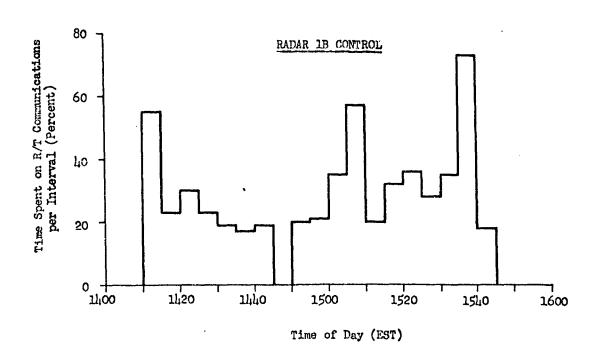
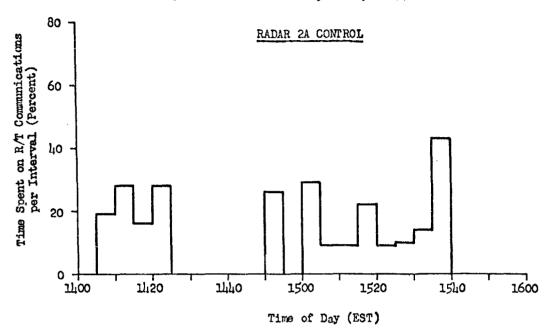
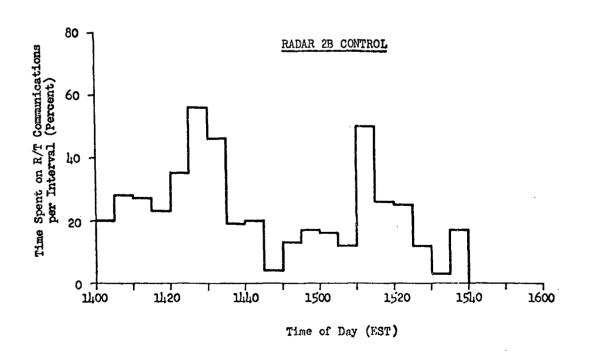


Figure II-6

# SEQUENTIAL VARIATION IN R/T COMMUNICATIONS LOAD

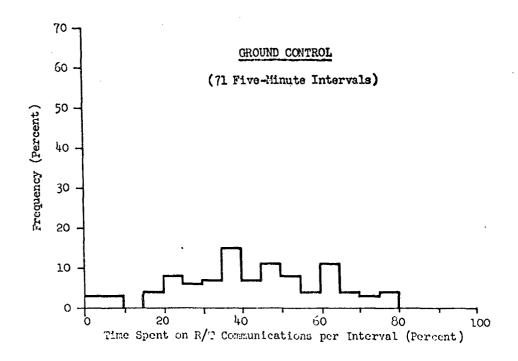
(Five-Minute Intervals, 23 May 1959)

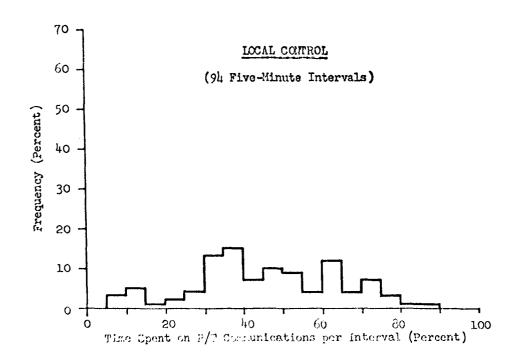


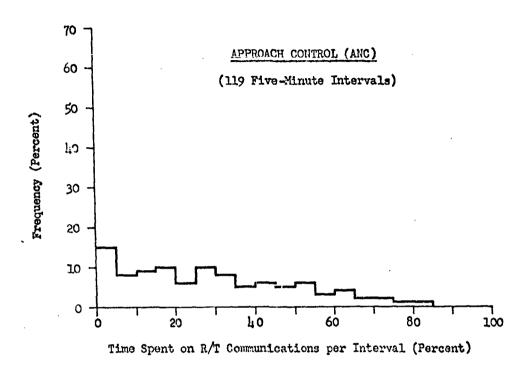


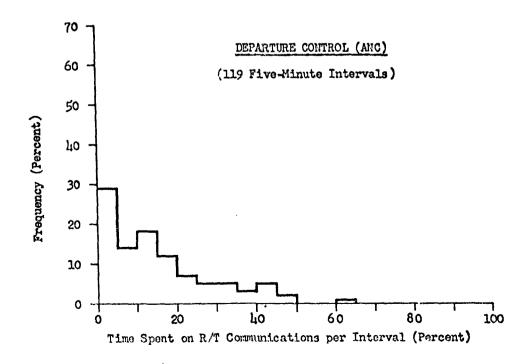
#### 2. Frequency Functions for Percent of Time Spent on R/T Communications

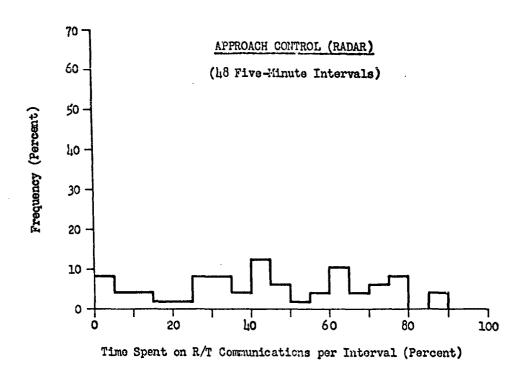
Figures II-7 to II-12 show the R/T communications load for each position in the form of frequency histograms. The ordinate represents the proportion of five-minute intervals in which occurred each of the R/T communications load percentages on the abscissa. These charts thus give an indication of the range of conditions encountered during the study as well as the average conditions.

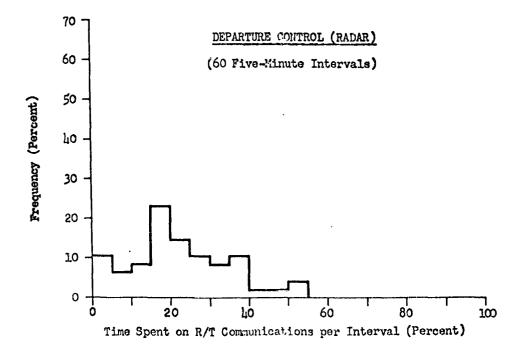


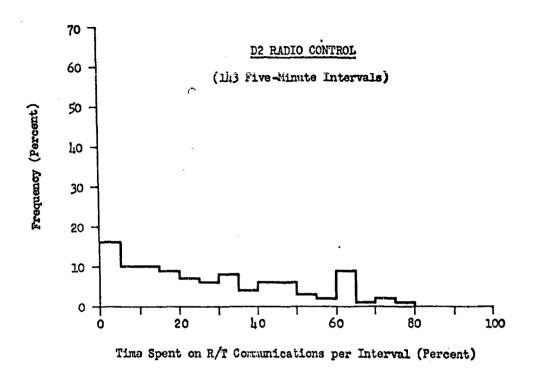












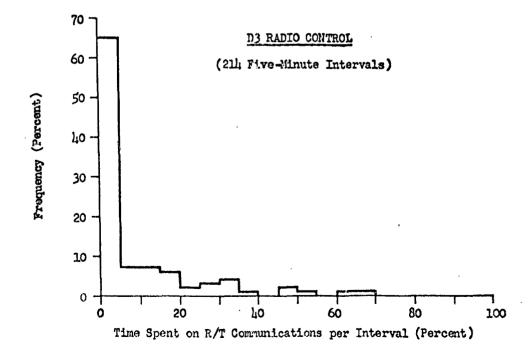
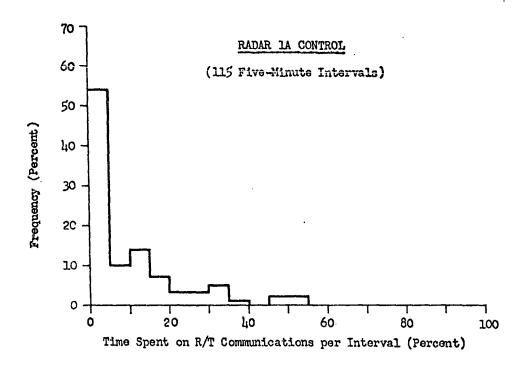


Figure II-11



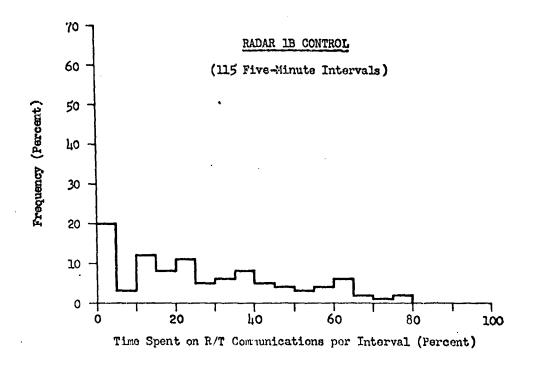
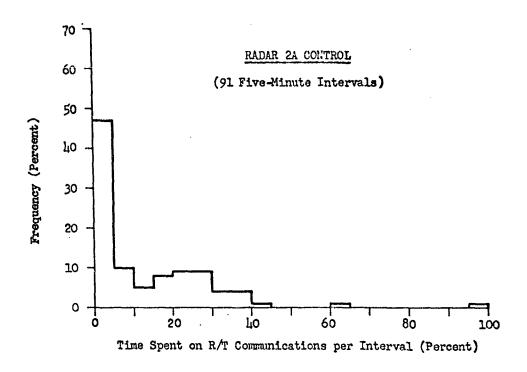
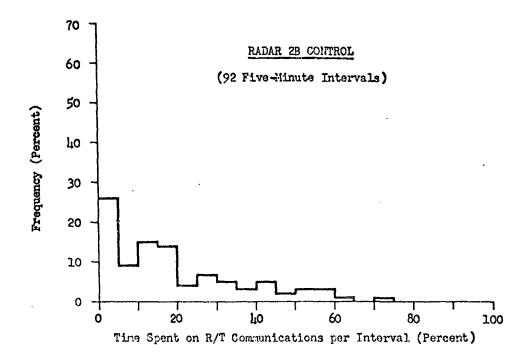


Figure II-12





#### 3. Time-Related Measures

The three primary time-related measures are:

- Average total communications time per aircraft per interval
- Average communications time per contact per interval
- Average number of contacts per aircraft per interval.

The average communications time per contact per interval was the basic unit of time measured in the study. The average total communications time per aircraft per interval was obtained by summing all contact times and dividing by the number of aircraft contacted during the selected time interval. Note that it is thus the product of the average contact time per aircraft and the average number of contacts per aircraft in the interval.

Figure II-13 shows a comparison of the time-related measures for the three facilities. These measures characterize the type of communications peculiar to each facility. For example, the Tower with its smaller control area and relatively high rate of information transfer is characterized by a short average time per contact.

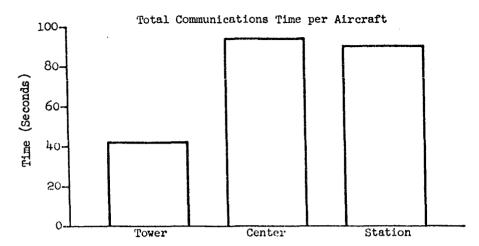
Figures II-14, II-15, and II-16 show the same three measures by position for the Tower, Center, and Station, respectively.

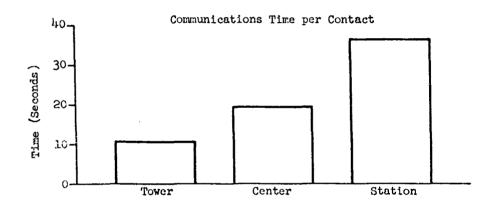
# Figure II-13

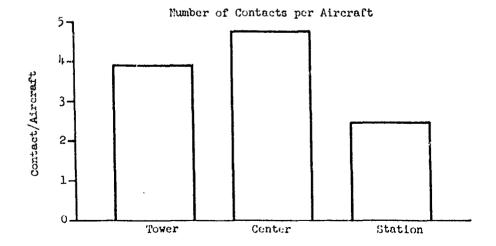
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### TIME-RELATED MEASURES BY FACILITY

(1959 Data)







#### TIME-RELATED MEASURES BY TOWER POSITION

(1960 Data for Radar Positions, 1959 Data for Others)

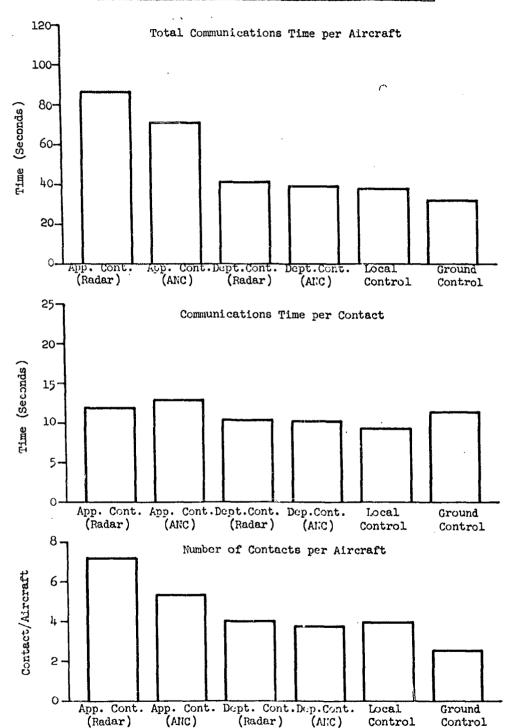
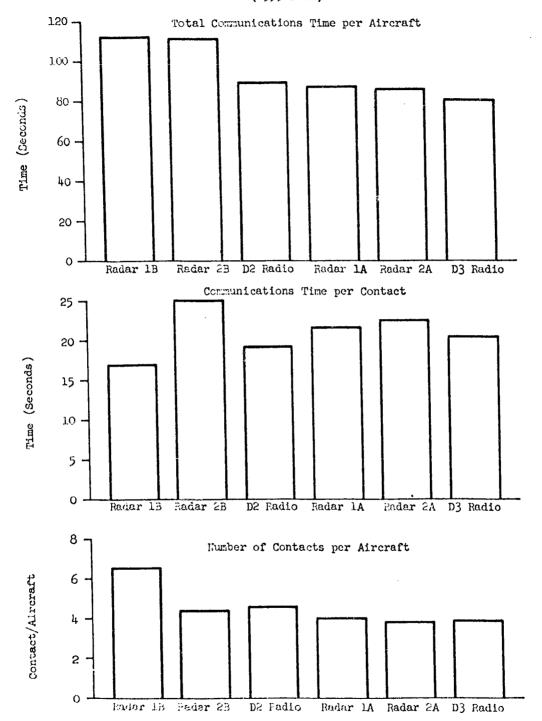


Figure II-15

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# TIME-RELATED MEASURES BY CENTER POSITION

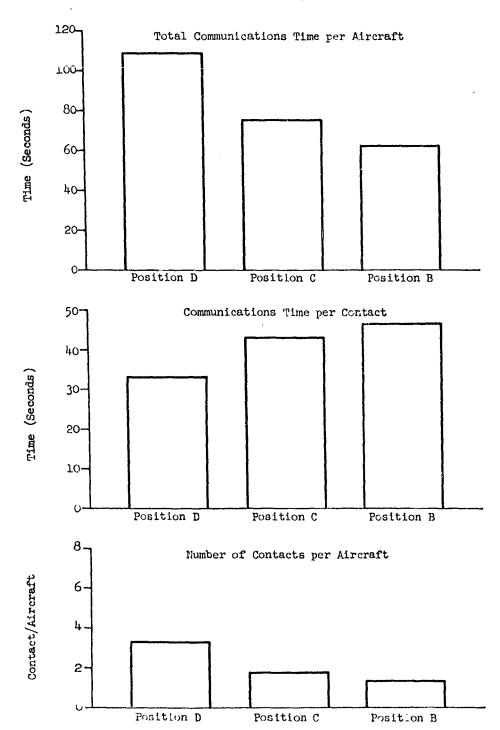
(1959 Data)



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## TIME-RELATED MEASURES BY STATION POSITION

(1959 Data)

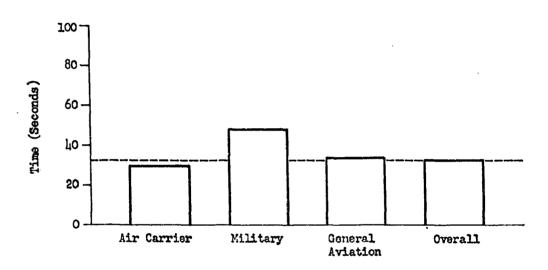


#### 4. Average Total Communications Time per Aircraft by Aviation Category.

Figures II-17 to II-23 show a comparison of the average total communications time per aircraft per two-hour interval for the various aviation categories. A bar and a reference line indicating the overall value has been included for ease of comparison.

While the finer category breakdown does permit a more detailed comparison, it does result in relatively small sample sizes in some instances. The R/T Communications Measures Tables should be consulted whenever extreme results are encountered, to determine if a small sample size might account for the results.

#### GROUND CONTROL



#### LOCAL CONTROL

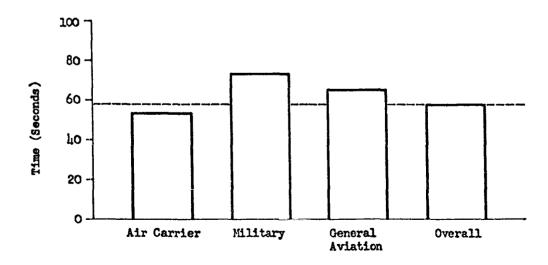
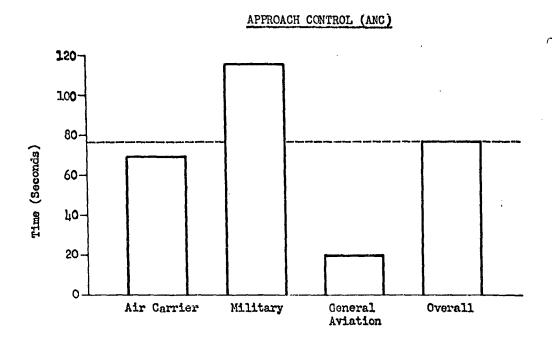
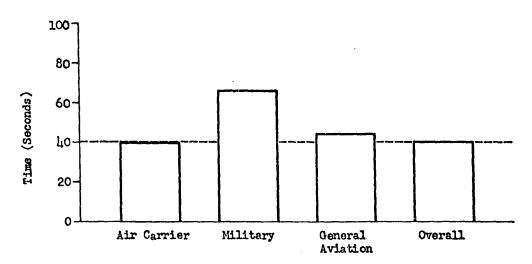
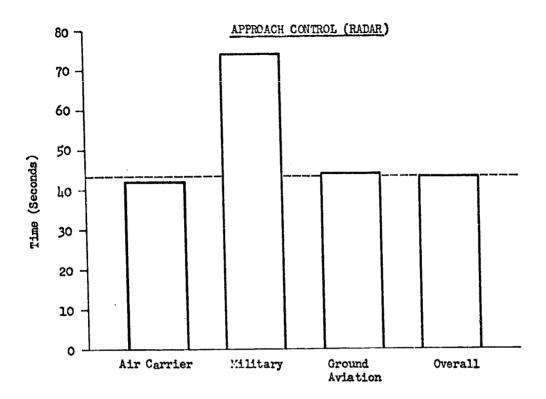


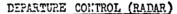
Figure II-18



# DEPARTURE CONTROL (ANC)







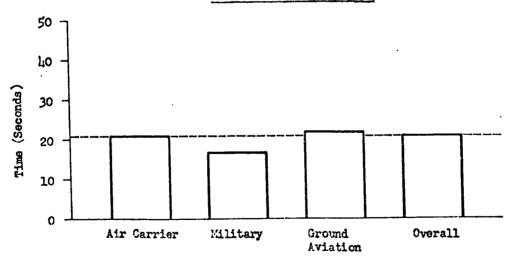
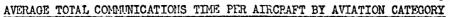
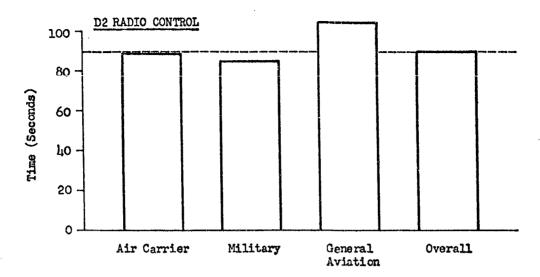
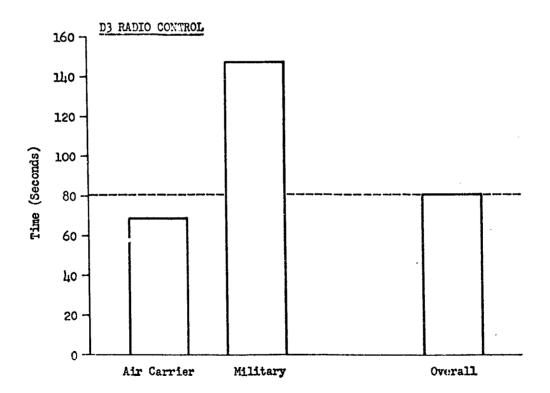


Figure II-20



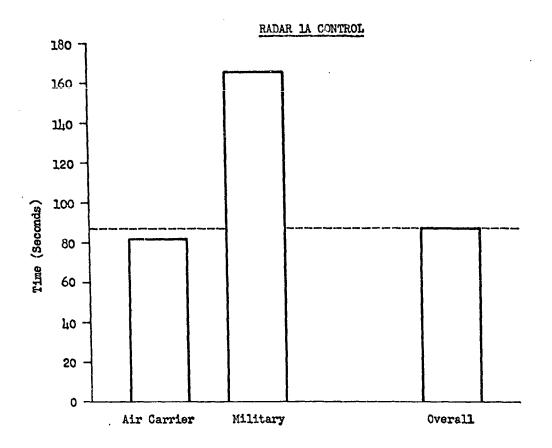






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# AVERAGE TOTAL COMMUNICATIONS TIME PER AIRCRAFT BY AVIATION CATEGORY



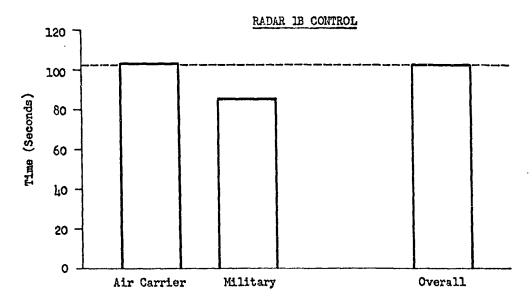
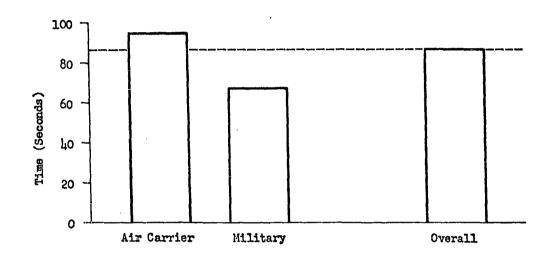


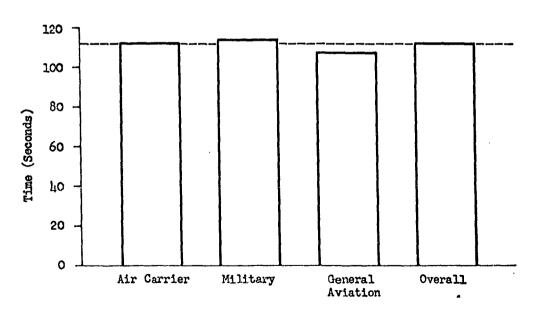
Figure 11-22

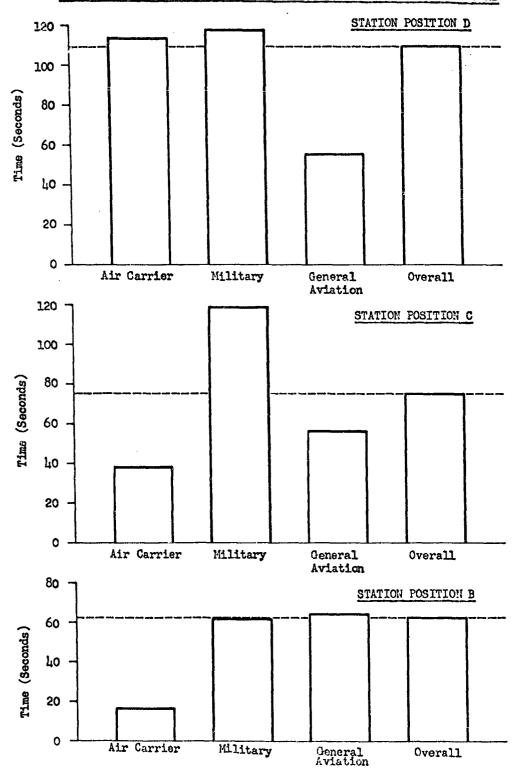
AVERAGE TOTAL COMMUNICATIONS TIME PER AIRCRAFT BY AVIATION CATEGORY

#### RADAR 2A CONTROL



## RADAR 2B CONTROL



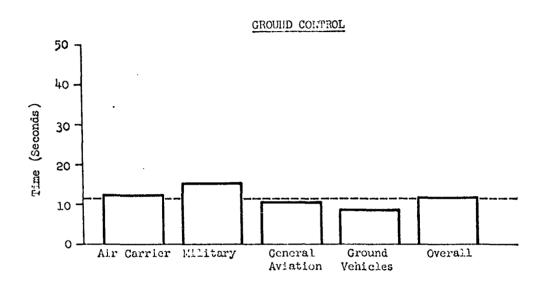


#### 5. Average Communications Time Per Contact by Aviation Category.

The second primary communications measure is shown by aviation category in figures II-24 to II-30. The reference interval length is two-hours, as before. The average contact time for ground vehicler handled by the Ground Control position is also included. A presentation of the number of contacts per vehicle and the total time per vehicle has not been made. These measures would be meaningless in this case since the ground vehicles operate continuously in the area.

Figure II-24

#### AVERAGE COMMUNICATIONS TIME PER CONTACT BY AVIATION CATEGORY



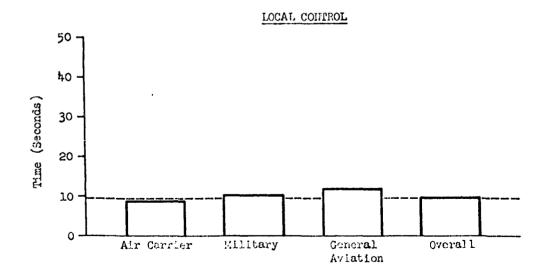
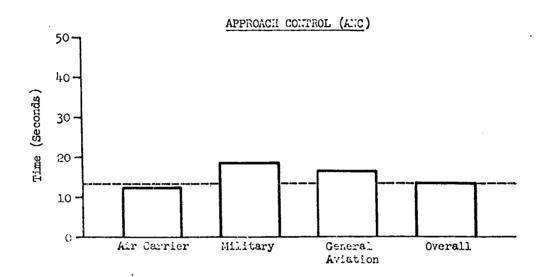


Figure 11-25

AVERAGE COLUMICATIONS TIME PER CONTACT BY AVIATION CATEGORY



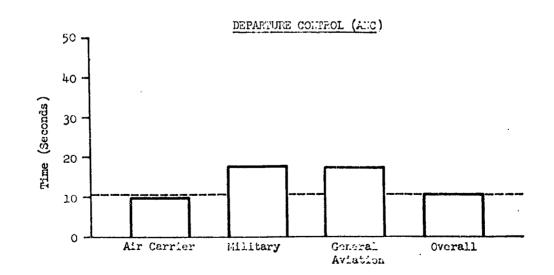
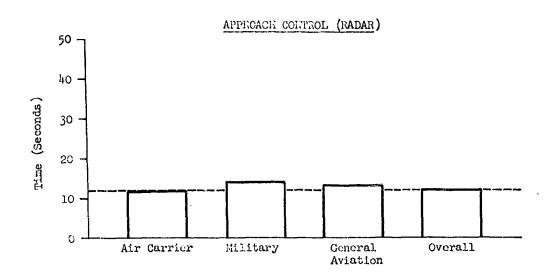


Figure II-26.

AVERAGE COMMUNICATIONS THE PER CONTACT BY AVERTON CATEGORY



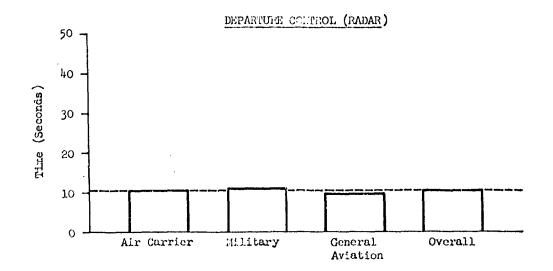
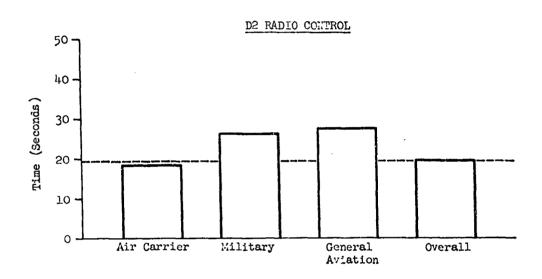


Figure II-27

AVERAGE COMMUNICATIONS THE PER CONTACT BY AVIATION CATEGORY



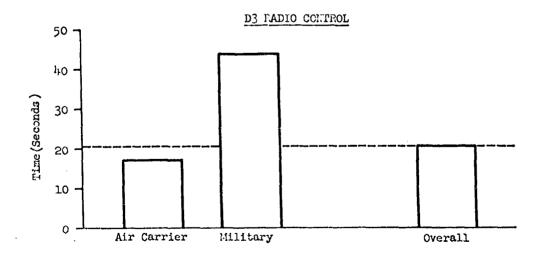
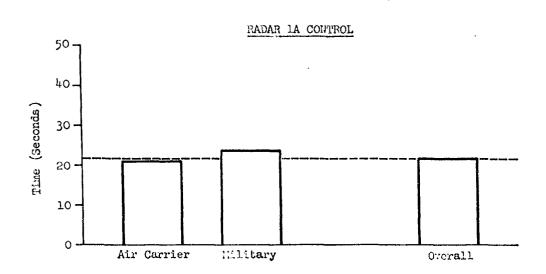


Figure II-28

AVERAGE COMMUNICATIONS TIME PER CONTACT BY AVIATION CATEGORY



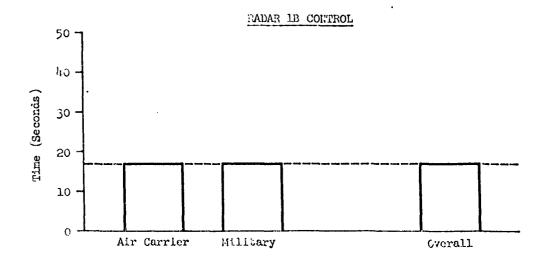
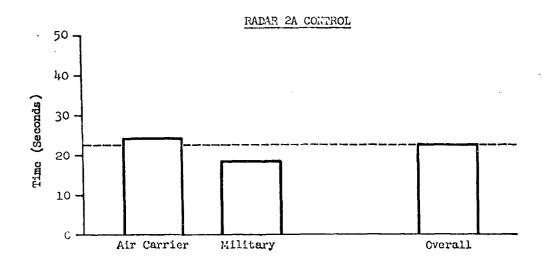
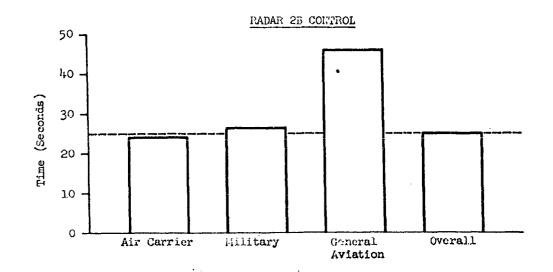


Figure 11-29

AVERAGE COMMUNICATIONS THE PER CONTACT BY AVIATION CATEGORY





NA

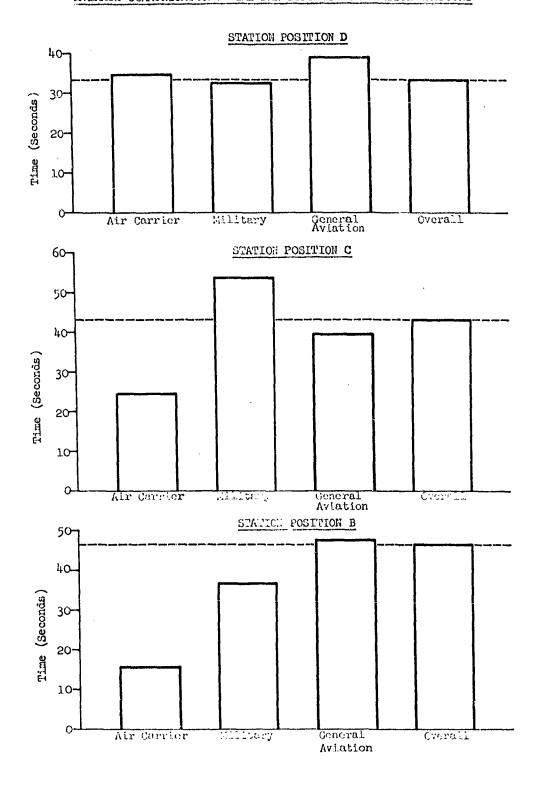
Figure II-30

AVERAGE COMMUNICATIONS THE PER CONTACT BY AVIATION CATEGORY

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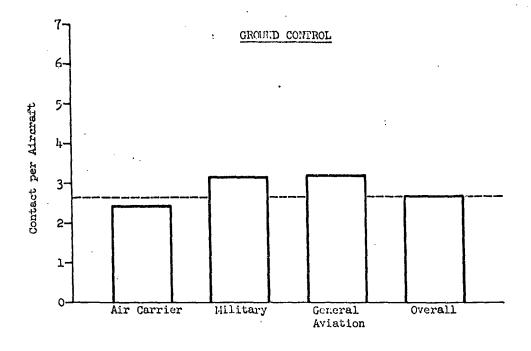
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6. Average Number of Contacts Per Aircraft Ey Aviation Category.

Figures II-31 through II-37 show the average number of contacts per two-hour interval established between the controller/communicator and pilots in the various aviation categories.

Figure II-31



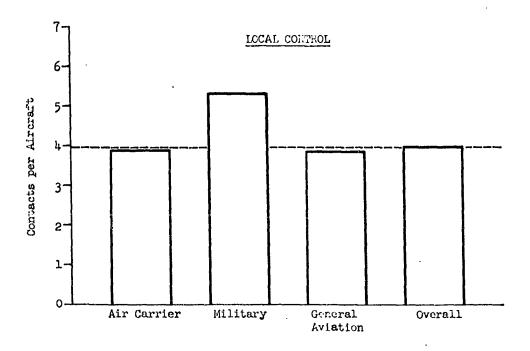
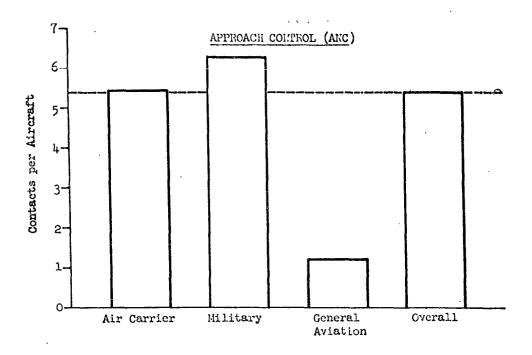
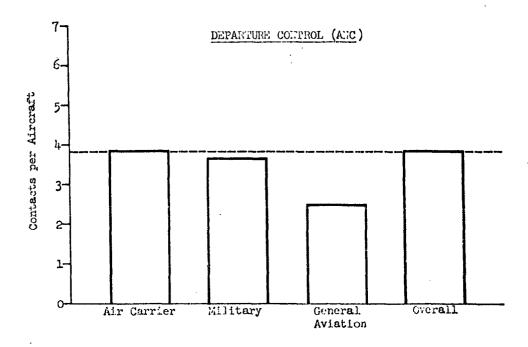
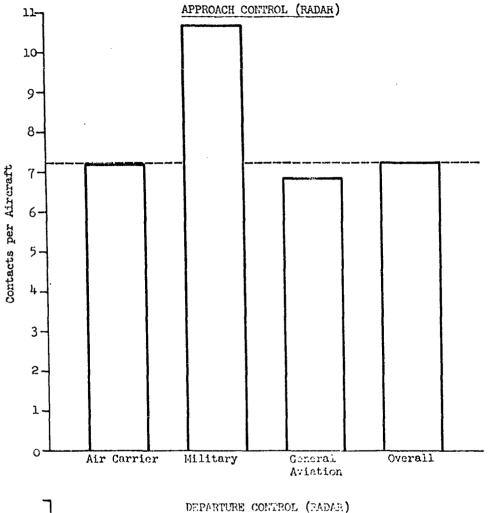
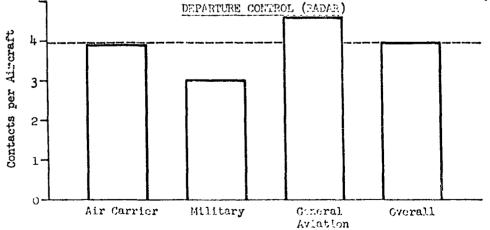


Figure II-32

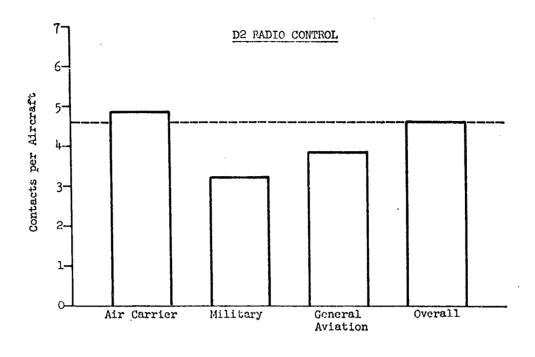


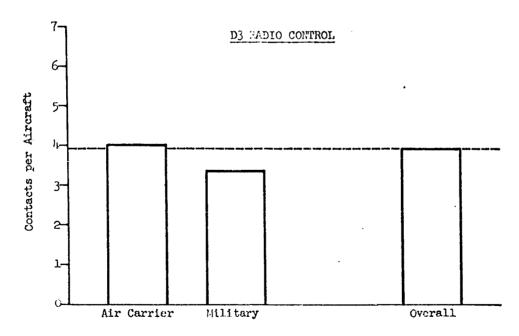


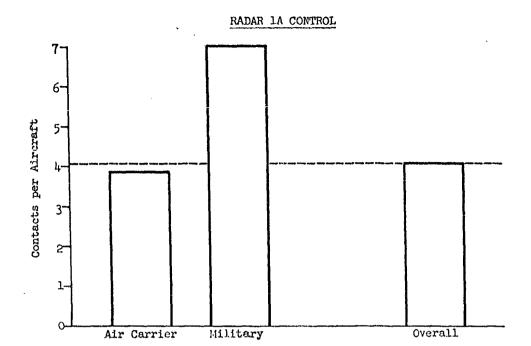




AVERAGE NUMBER OF CONTACTS PER ATRORAFT BY AVIATION CATEGORY







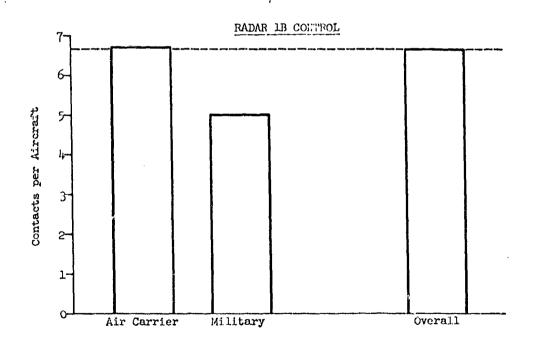
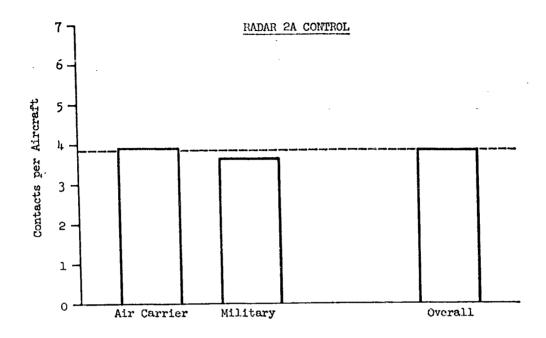


Figure II-36



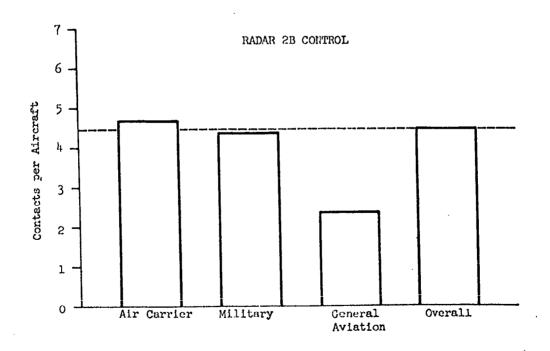
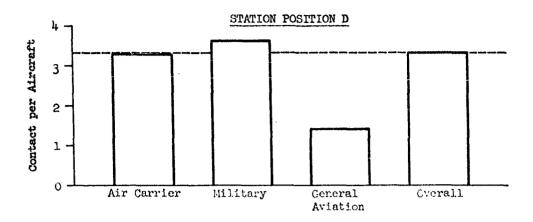
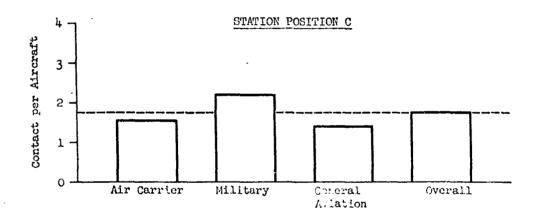
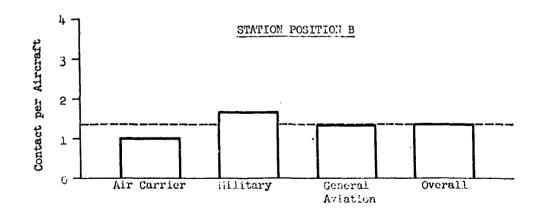


Figure II-37







#### SECTION III

#### ANALYSIS OF DATA

The time-related measures described in Section II are further analyzed in the seven cycles of charts presented here. The charts represent attempts to isolate meaningful correlations between the variables. The presence of certain relationships such as decreasing time per contact with increasing traffic load are believed to exist by almost all FAA controllers. The establishment of these relationships on a quantitative basis would have yielded meaningful system parameters, but the findings were negative. The data are presented by facility and position in most cases. In addition, time intervals of different lengths were used in order to obtain appropriate levels of sensitivity.

A section of miscellaneous analytical tables is presented in Part 3. These tables do not relate directly to the charts presented in this section.

#### A. ANALYTICAL CHARTS

The first four cycles show the effects of traffic density, R/T communications load, and controller facility experience on the normalized time-related measures. The fifth cycle shows the effect of traffic density on message count.

Considerable variation in the time-related measures was observed within a given position. This variation was not, however, found to be significantly correlated to the density and experience measures.

The net effect of this lack of correlation is presented in the last two cycles of charts. The relationship between message load and R/T communications load and between traffic load and R/T communications load was found to be essentially linear throughout the range of conditions encountered. A linear extrapolation of the traffic load versus R/T load charts yielded an estimate of the R/T communications saturation level for all positions. The analysis of the time-related measures is presented schematically in Figure III-1.

The symbols used in plotting all data in this section are defined as follows:

- ♦ All Hours 1960
- o 1400-1800 Hours 1959
- △ 0800-1000 Hours 1959
- 0000-0200 Hours 1959

#### 1. Effect of Traffic Density on Time-Related Measures.

Figures III-2 to III-37 show the relationships between traffic density as represented by the number of aircraft handled in a given time interval and the three time-related measures for the corresponding interval. Half-hour, one-hour, and two-hour intervals were all used for the analysis.

The sum of the number of aircraft handled in two consecutive half-hour intervals does not always equal the number handled in the resulting one-hour interval. That is, when one aircraft appears in both half-hour intervals, that plane would be included in each half-hour interval but would be included just once in the one-hour tally. A similar tallying procedure was used in going from the one-hour to the two-hour intervals.

Whenever a significant difference between 1959 and 1960 data occurred, a separate dotted line was used to represent the 1950 data. If no significant difference existed, a single solid line was used to represent the data from both years.

Figure III-2

# EFFECT OF TRAFFIC DENSITY ON THE-RELATED MEASURES AT GROUND CONTROL (Half-Hour Intervals)

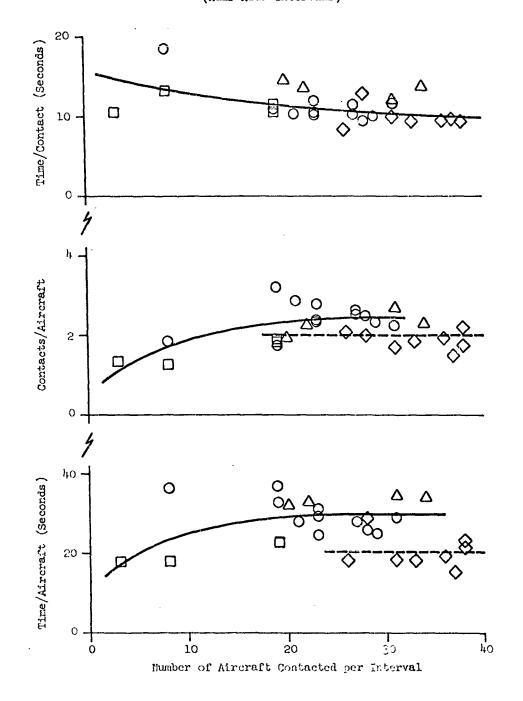
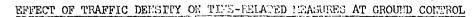
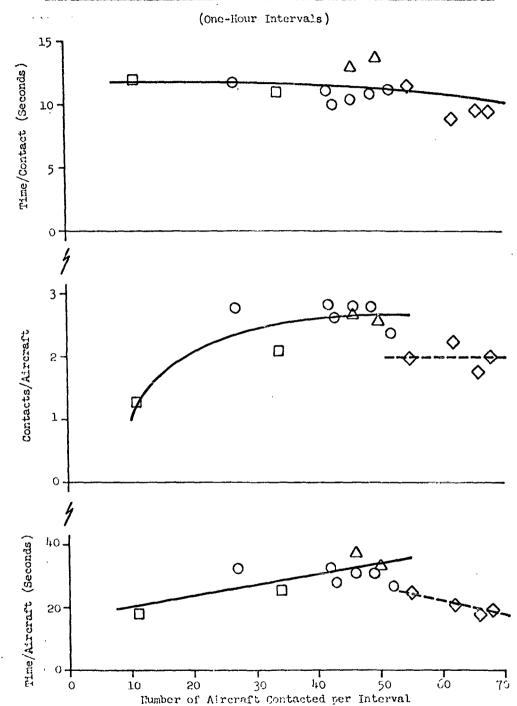


Figure III-3





I

1

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## EFFECT OF TRAFFIC DENSITY ON TIME-RELATED MEASURES AT GROUND CONTROL

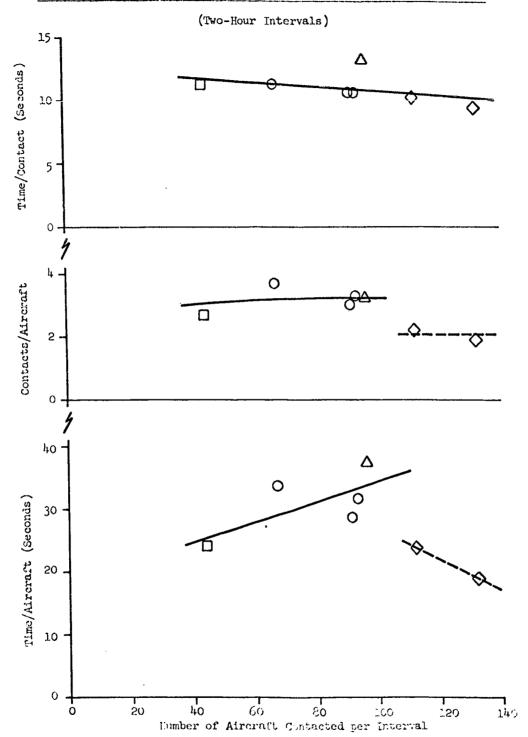
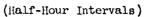
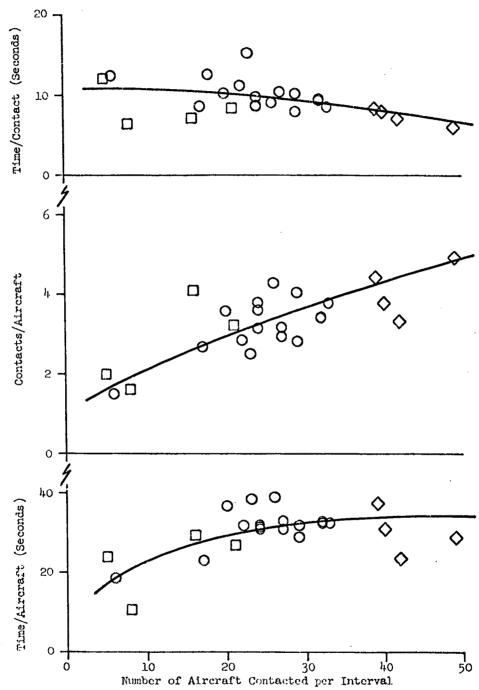


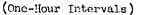
Figure III-5

#### EFFECT OF TRAFFIC DENSITY ON TIME-RELATED MEASURES AT LOCAL CONTROL





EFFECT OF TRAFFIC DENSITY ON TIME-RELATED MEASURES AT LOCAL CONTROL



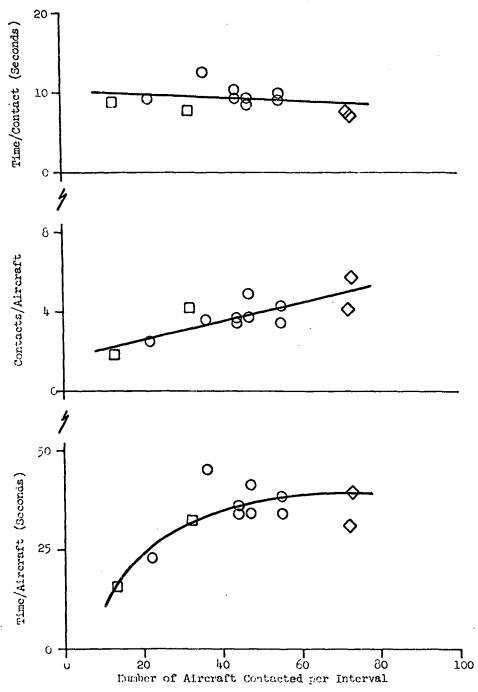
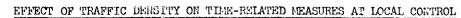


Figure III-7



(Two-Hour Intervals)

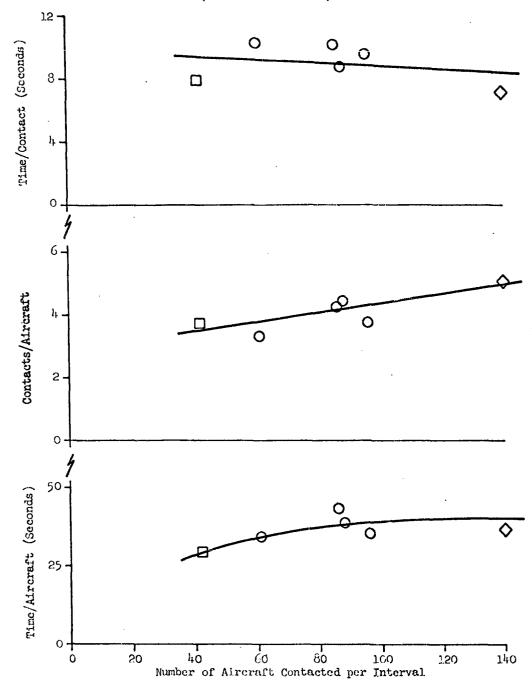
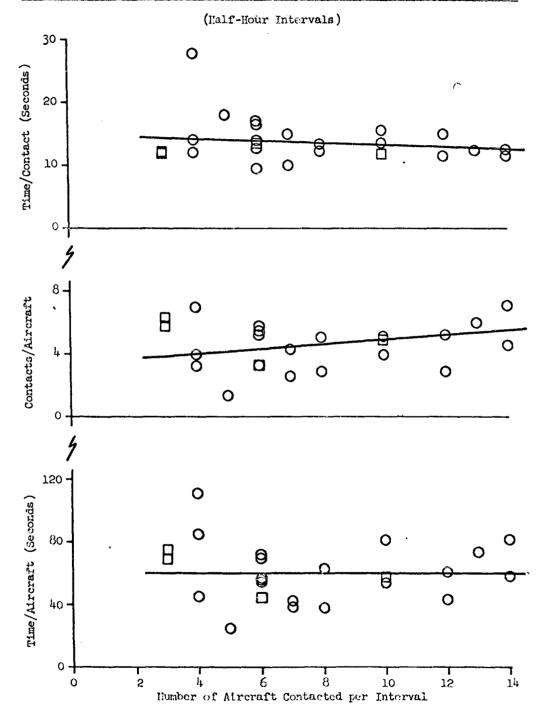
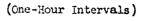


Figure III-8

## EFFECT OF TRAFFIC DENSITY ON TIME-RELATED MEASURES AT APPROACH CONTROL (AMC)



## EFFECT OF TRAFFIC DENSITY ON TIME-RELATED MEASURES AT AFTROACH CONTROL (AMC)



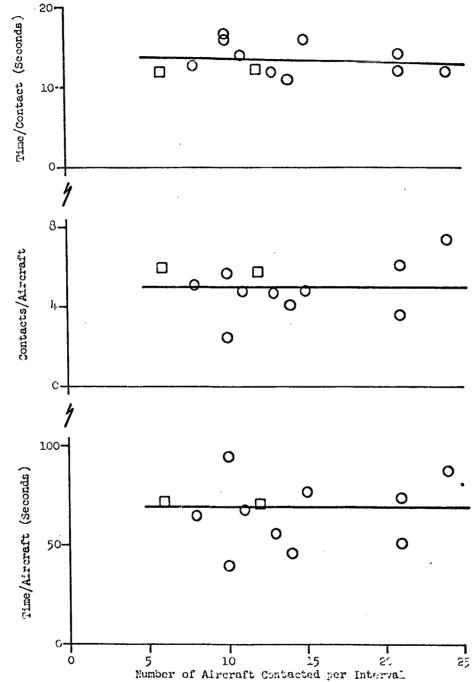
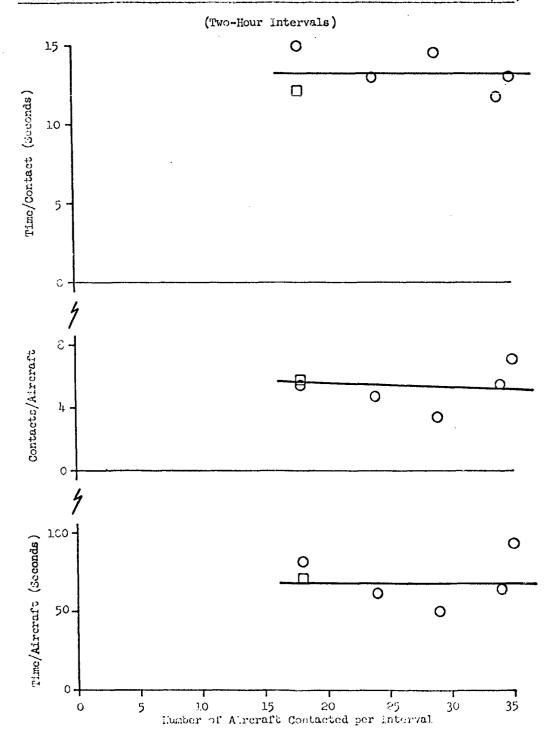


Figure III-10

EFFECT OF TRAFFIC DENSITY ON TIME-RELATED MEASURES AT APPROACH CONTROL (ANC)





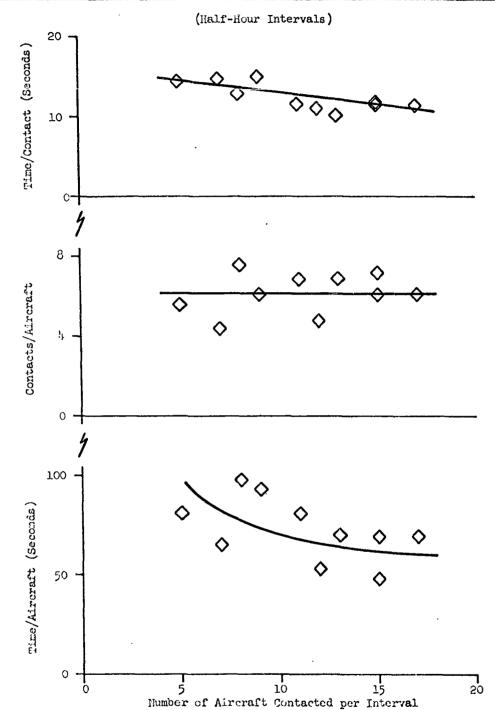
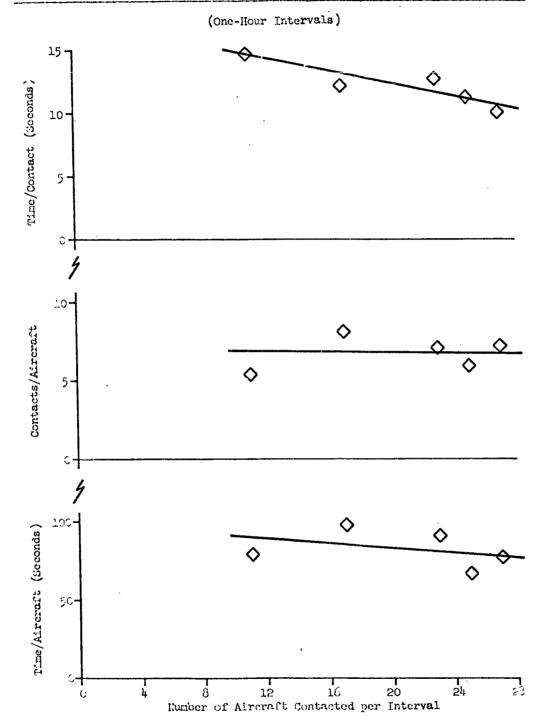
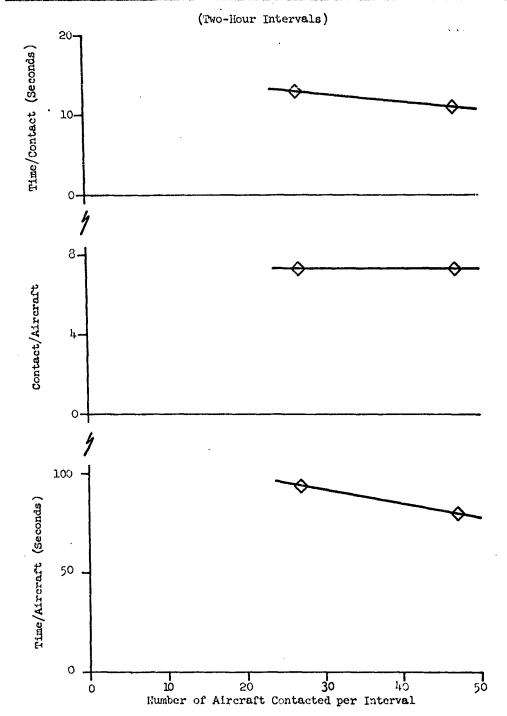


Figure III-12

EFFECT OF TRAFFIC DELISITY ON TIME-RELATED MEASURES AT APPROACH CONTROL (RADAR)



EFFECT OF TRAFFIC DENSITY ON TIME-RELATED MEASURES AT APPROACH CONTROL (RADAR)



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Figure III-14

## EFFECT OF TRAFFIC DESSITY ON TIME-RELATED MEASURES AT DEPARTURE CONTROL (ALC)

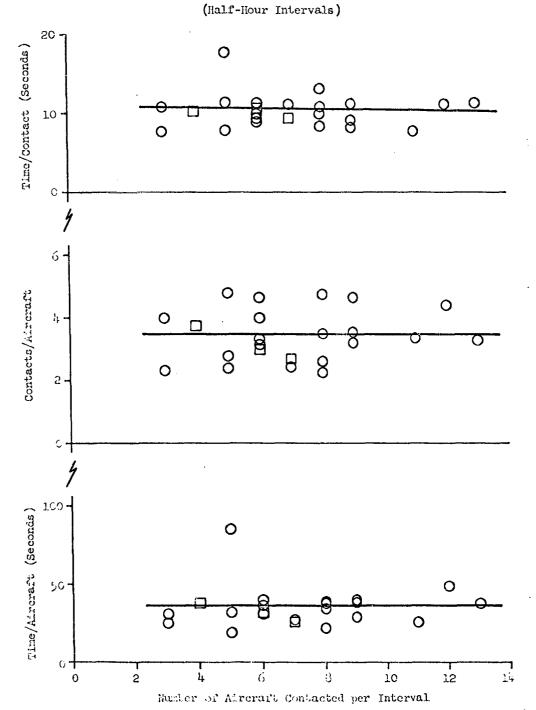
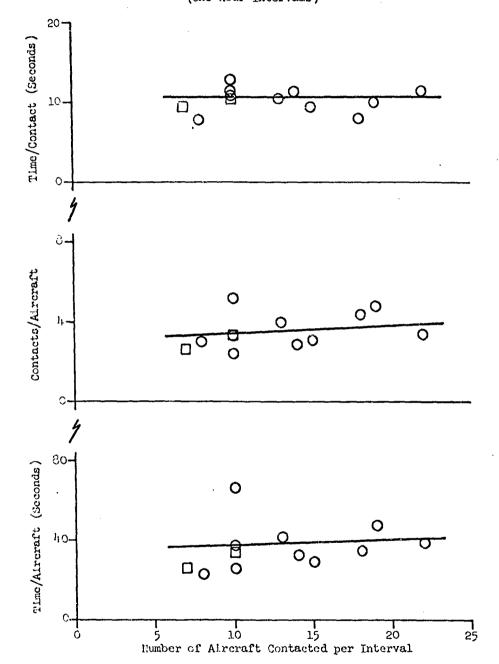


Figure III-15

EFFECT OF TRAFFIC DENSITY ON TIME-RELATED MEASURES AT DEPARTURE CONTROL (ANC)

(One-Hour Intervals)



30

20

55

35.

c +

5

10

15

Number of Aircraft Contacted per Interval

Figure III-16

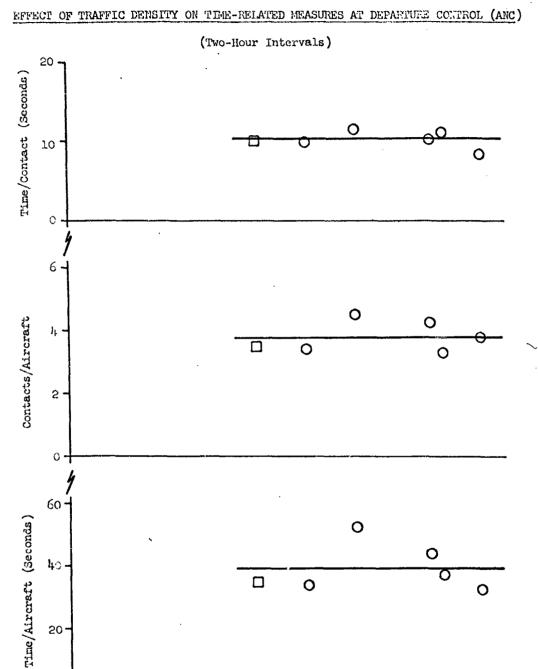
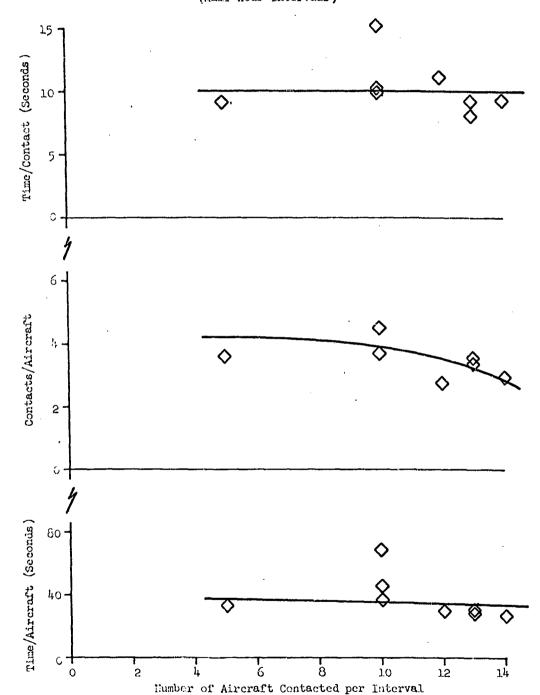


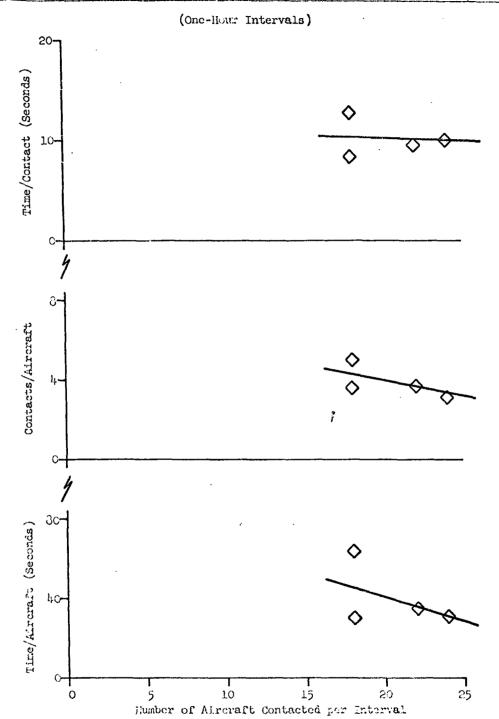
Figure III-17

## EFFECT OF TRAFFIC DEESITY ON THAE-RELATED MEASURES AT DEPARTURE CONTROL (RADAR)

(Half-Hour Intervals)

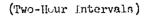


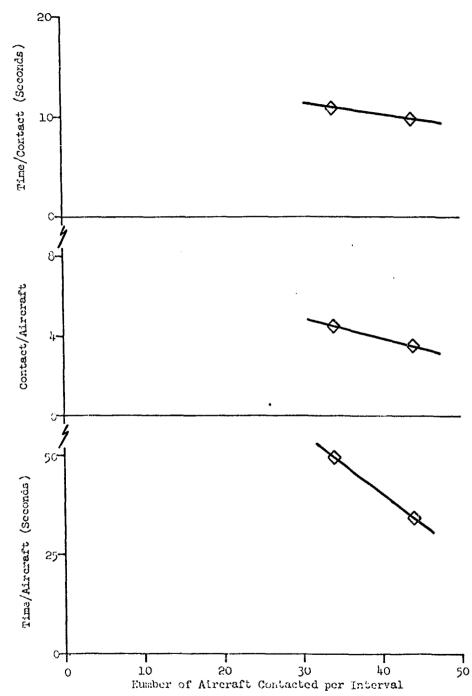
## EFFECT OF TRAFFIC DENSITY ON TIME-RELATED MEASURES AT DEPARTURE CONTROL (RADAR)



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EFFECT OF TRAFFIC DEBSITY OF TIME-RELATED MEASURES AT DEPARTURE CONTROL (RADAR)





## EFFECT OF TRAFFIC DENSITY OF TIME-RELATED MEASURES AT D2 RADIO CONTROL

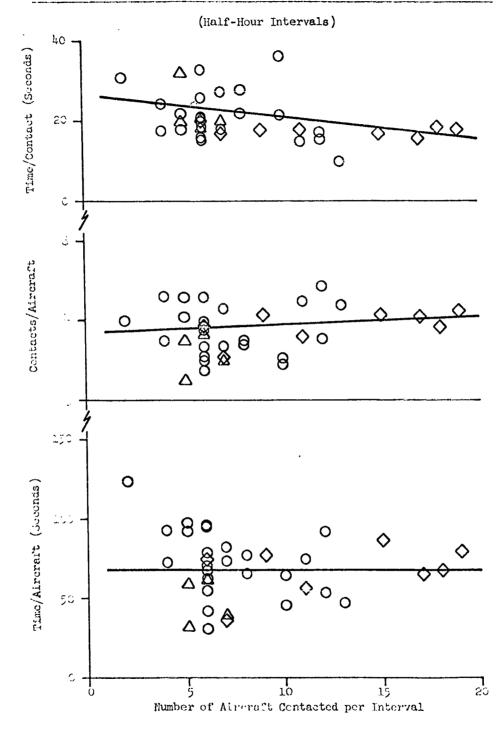
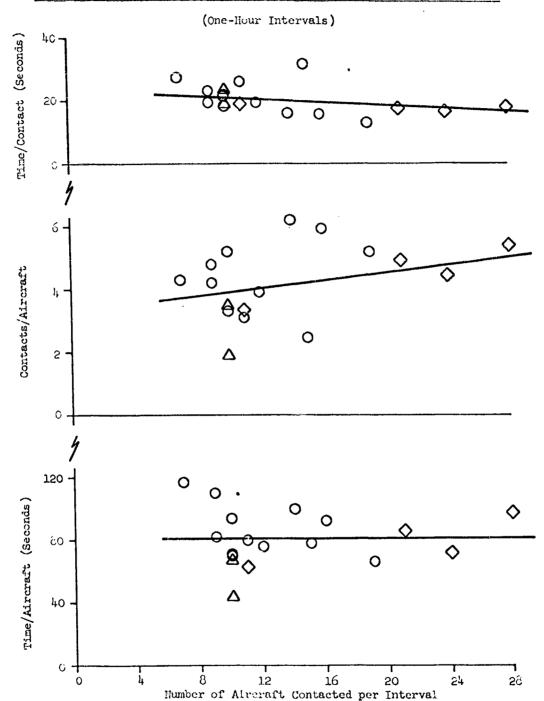


Figure III-21

## EFFECT OF TRAFFIC DENSITY ON TIME-RELATED MEASURES AT D2 RADIO COLTROL



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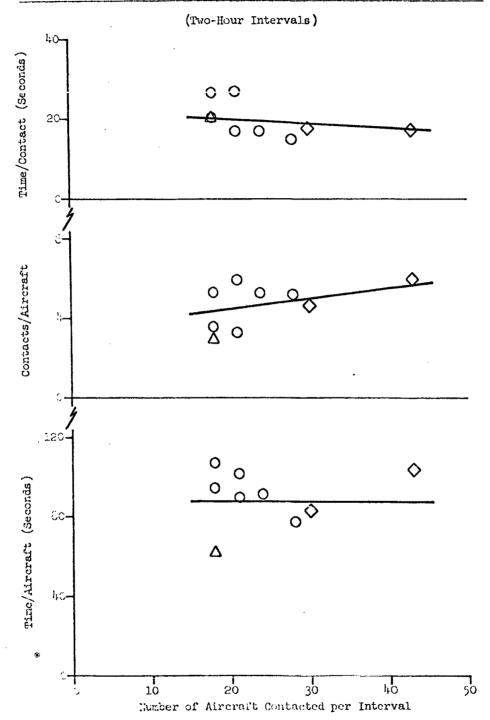
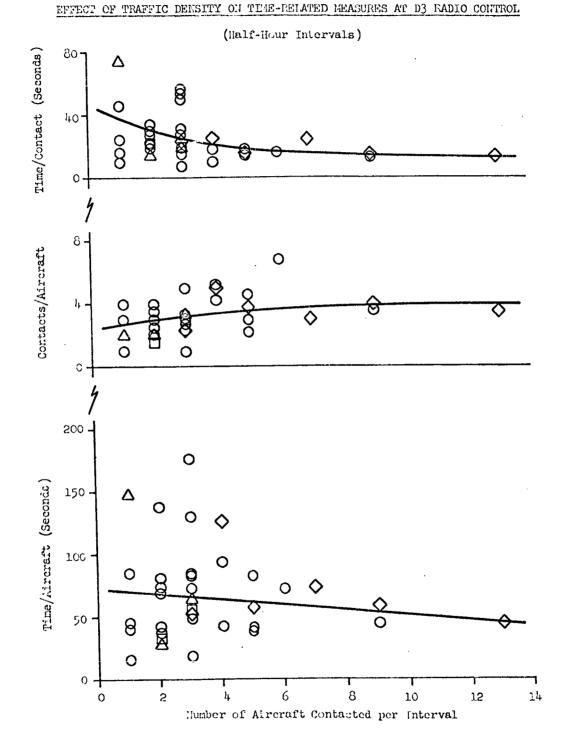


Figure III-23



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## EFFECT OF TRAFFIC DENSITY ON TIME-RELATED MEASURES AT D3 RADIO CONTROL

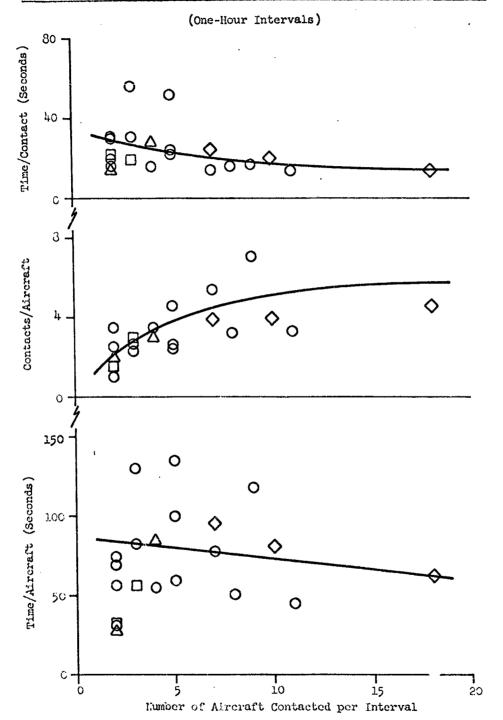
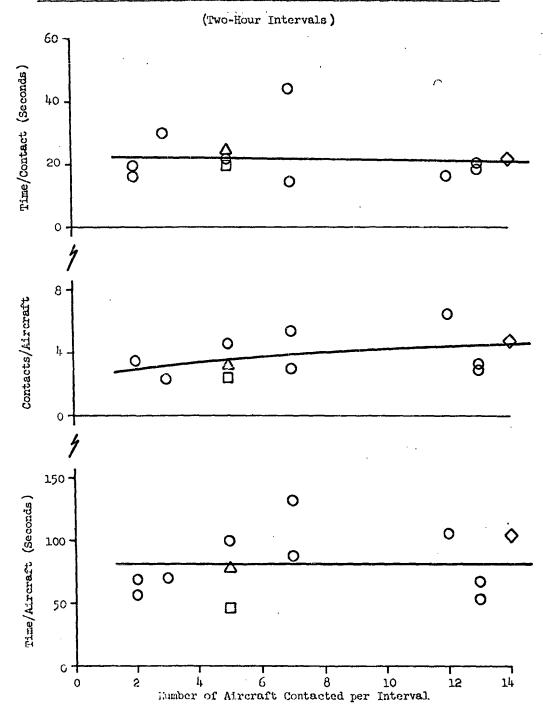


Figure III-25

#### EFFECT OF TRAFFIC DENSITY ON TIME-RELATED MEASURES AT D3 RADIO CONTROL



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Figure III-26

#### EFFECT OF TRAFFIC DENSITY OF TIME-RELATED MEASURES AT RADAR LA CONTROL

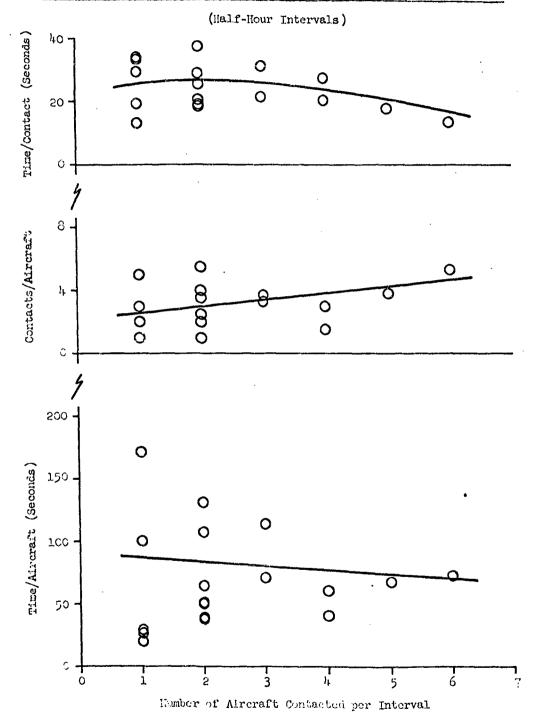


Figure III-27

#### EFFECT OF TRAFFIC DESSITY ON TIME-RELATED MEASURES AT RADAR 1A CONTROL

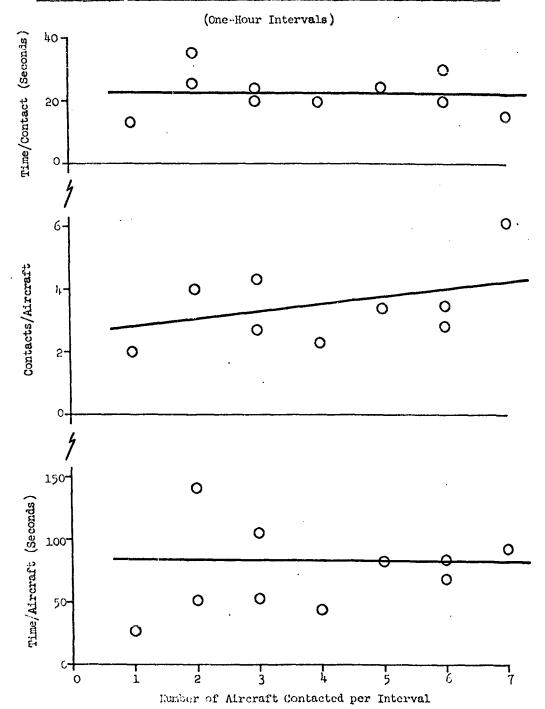


Figure III-28

#### EFFECT OF TRAFFICE DELISITY ON TIME-RELATED MEASURES AT RADAR 1A CONTROL

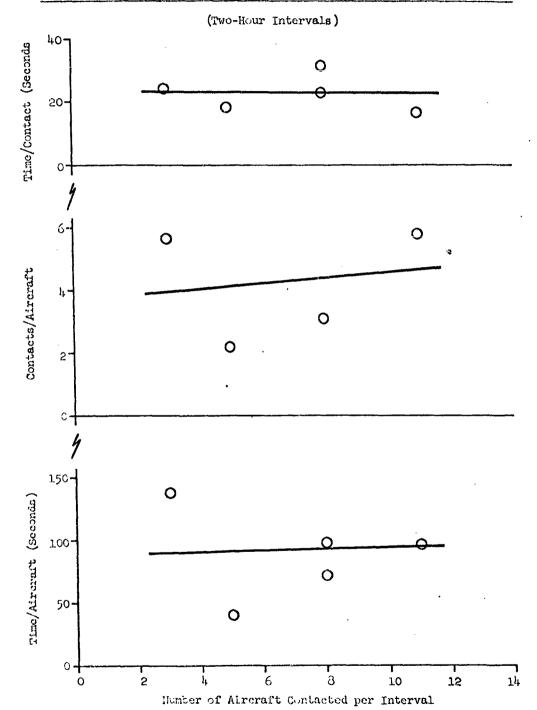
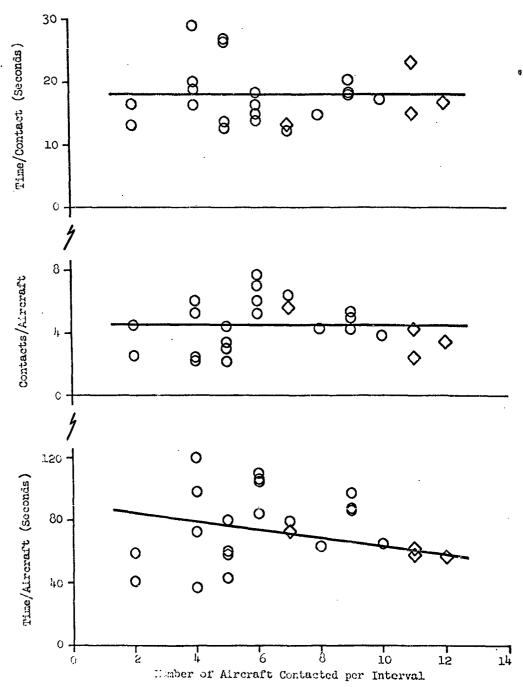


Figure III-29

#### EFFECT OF TRAFFIC DEHSITY ON TIME-RELATED MEASURES AT RADAR 1B CONTROL



#### EFFECT OF TRAFFIC DENSITY ON TIME-RELATED MEASURES AT RADAR 1B CONTROL

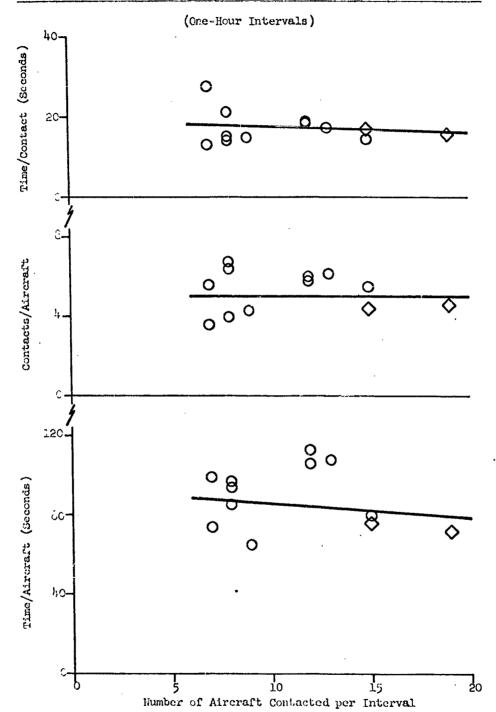
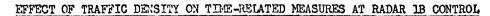
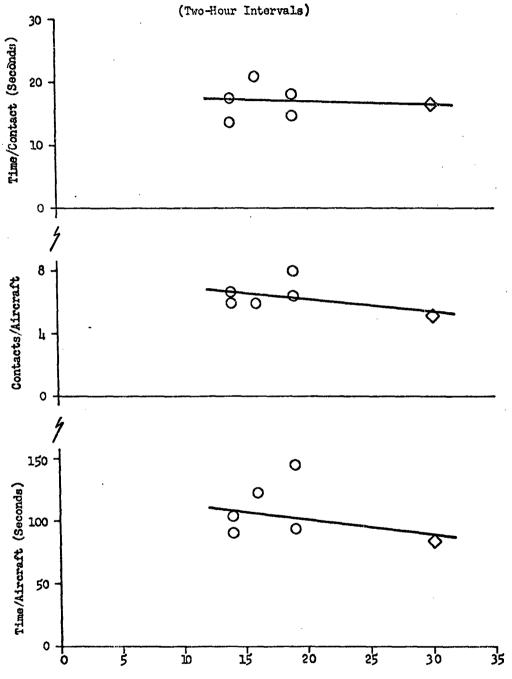


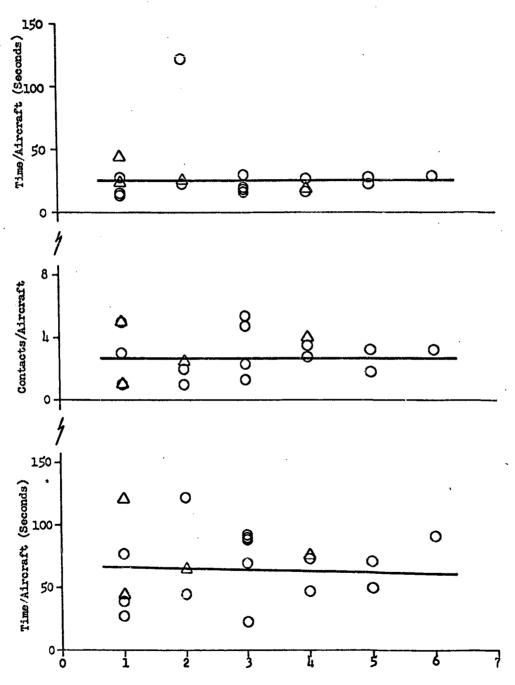
Figure III-31





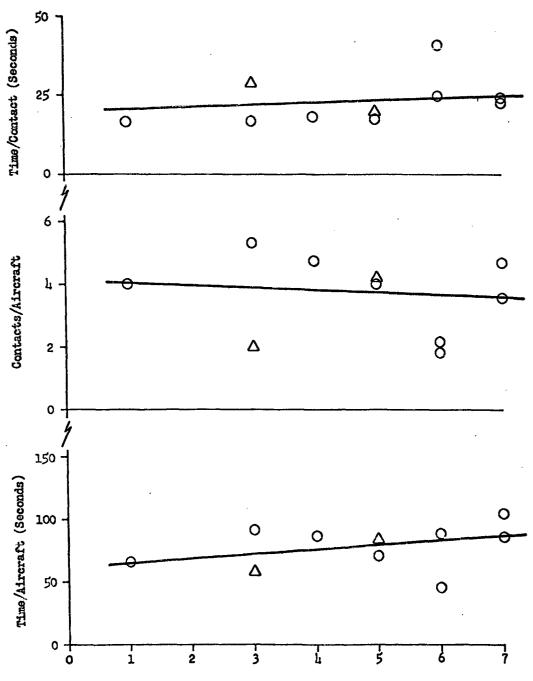
Number of Aircraft Contacted per Interval

## EFFECT OF TRAFFIC DENSITY ON TIME-RELATED MEASURES AT RADAR 2A CONTROL



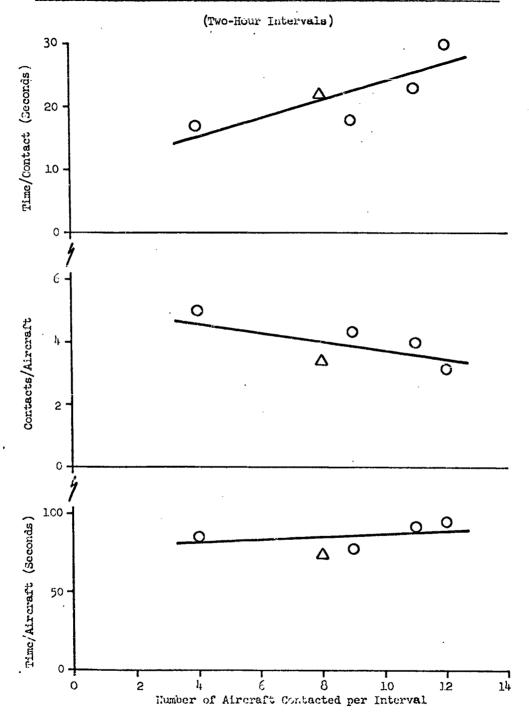
Number of Aircraft Contacted per Interval

EFFECT CF TRAFFIC DENSITY ON TIME-RELATED MEASURES AT RADAR 2A CONTROL

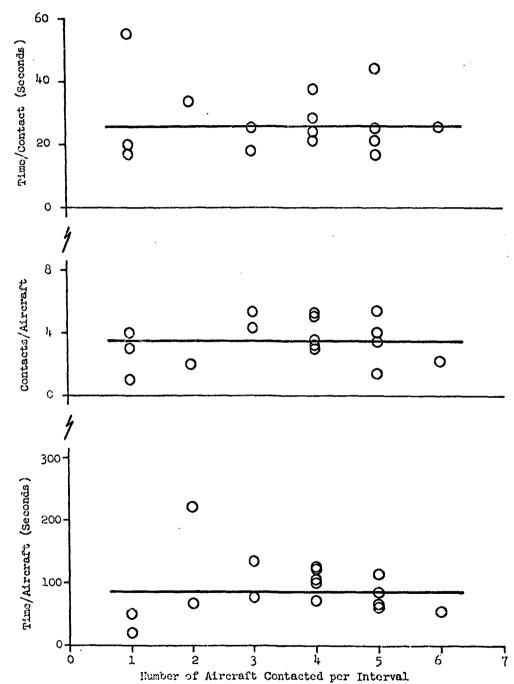


Number of Aircraft Contacted per Interval

#### EFFECT OF TRAFFIC DENSITY ON TIME-RELATED MEASURES AT RADAR 2A CONTROL



#### EFFECT OF TRAFFIC DESSITY ON TIME-RELATED MEASURES AT RADAR 2B CONTROL



### EFFECT OF TRAFFIC DENSITY ON TIME-RELATED MEASURES AT RADAR 2B CONTROL

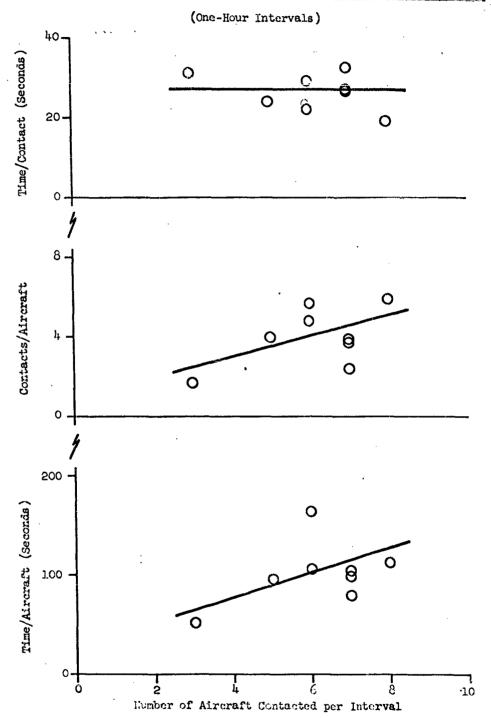
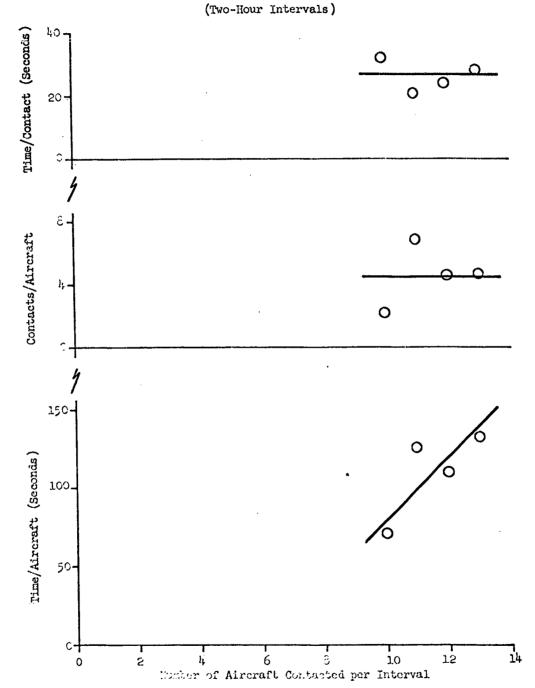


Figure III-37

EFFEC: OF TRAFFIC DELISITY ON TIME-RELATED MEASURES AT RADAR 2B CONTROL



#### 2. Effect of R/T Communications Load on Time-Related Measures.

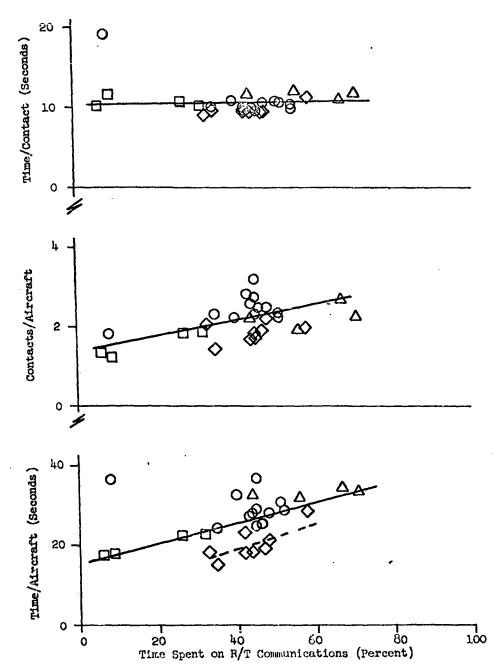
Figures III-38 to III-73 show the relationships between the R/T communications level in a given interval and each of the three time-related measures computed for the corresponding interval.

Half-hour, one-hour and two-hour intervals were all used for the analysis. Significant differences between 1959 and 1960 data are indicated by solid and dotted lines.

Figure III-38

EFFECT OF COMMUNICATIONS LOAD ON TIME-RELATED MEASURES AT GROUND CONTROL

(Half-Hour Intervals)



#### EFFECT OF COMMUNICATIONS LOAD ON TIME-RELATED MEASURES AT GROUND CONTROL

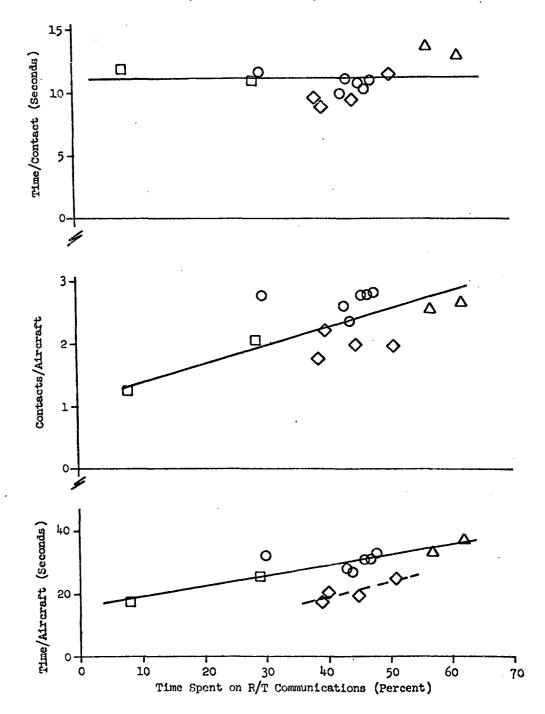
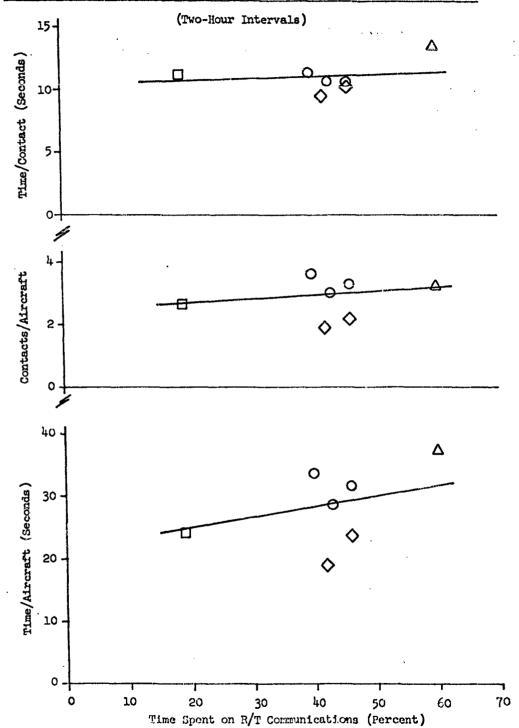
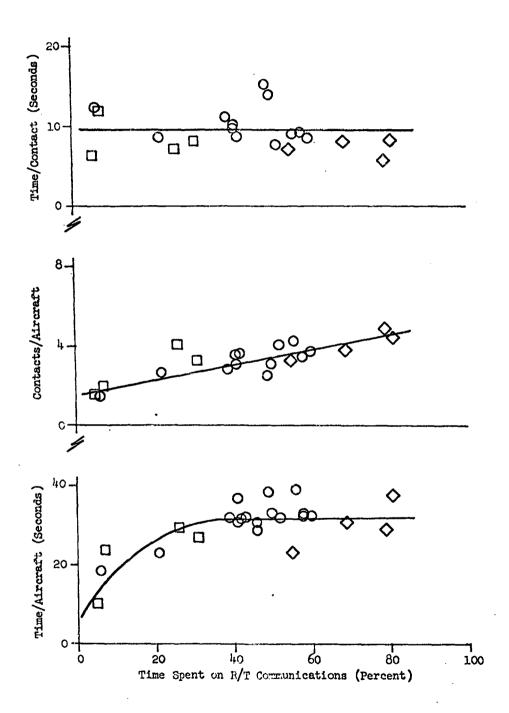


Figure III-40

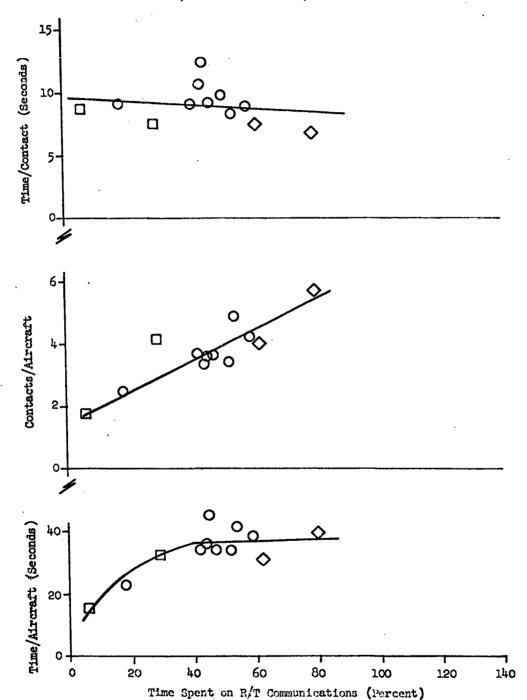




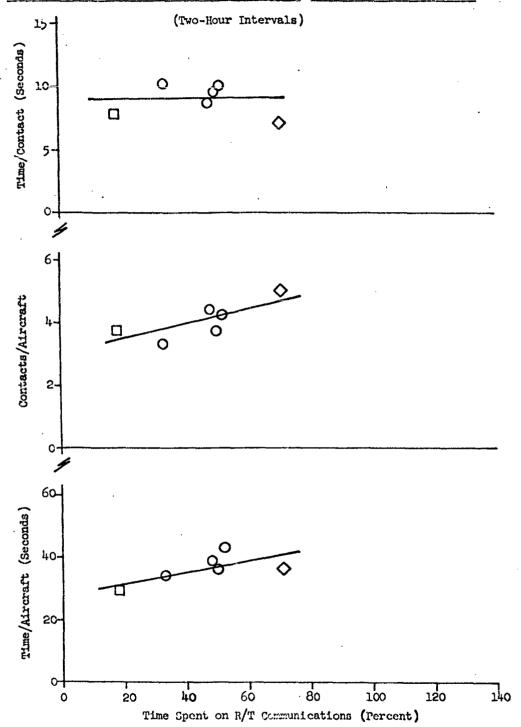
EFFECT OF COMMUNICATIONS LOAD ON TIME-RELATED MEASURES AT LOCAL CONTROL



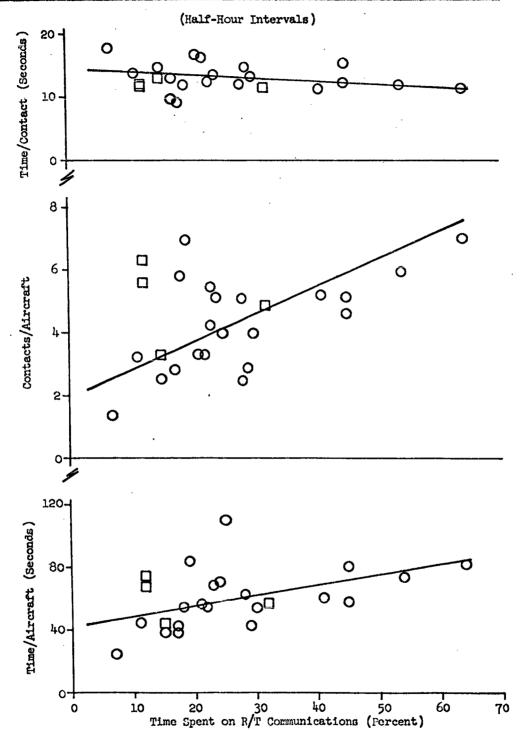
#### EFFECT OF COMMUNICATIONS LOAD ON TIME-RELATED MEASURES AT LOCAL CONTROL



EFFECT OF COMMUNICATIONS LOAD ON TIME-RELATED MEASURES AT LOCAL CONTROL



EFFECT OF COMMUNICATIONS LOAD ON TIME-RELATED MEASURES AT APPROACH CONTROL (A



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EFFECT OF COMMUNICATIONS LOAD ON TIME-RELATED MEASURES AT APPROACH CONTROL (ANC)

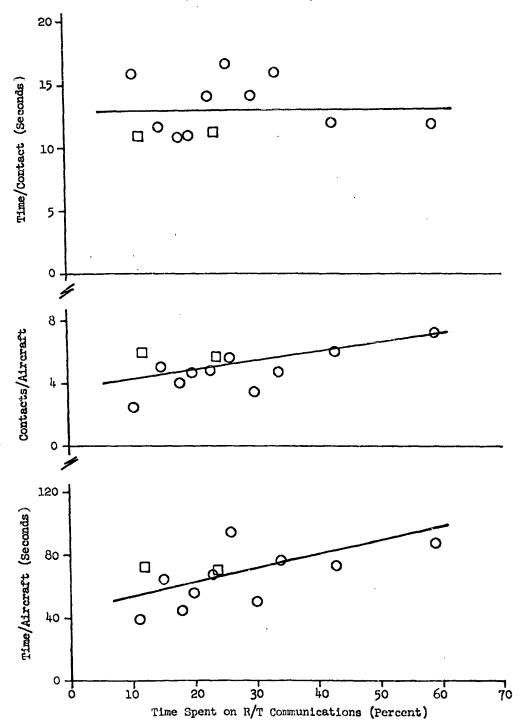


Figure III-46

EFFECT OF COMMUNICATIONS LOAD ON TIME-RELATED MEASURES AT APPROACH CONTROL (ANC)

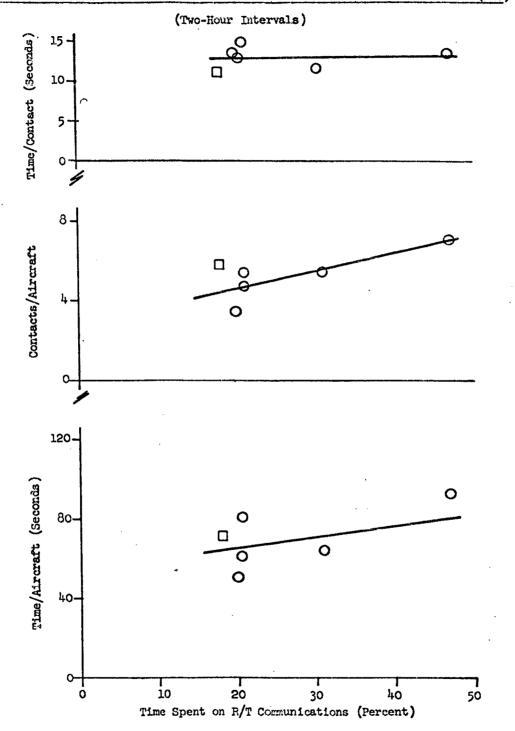
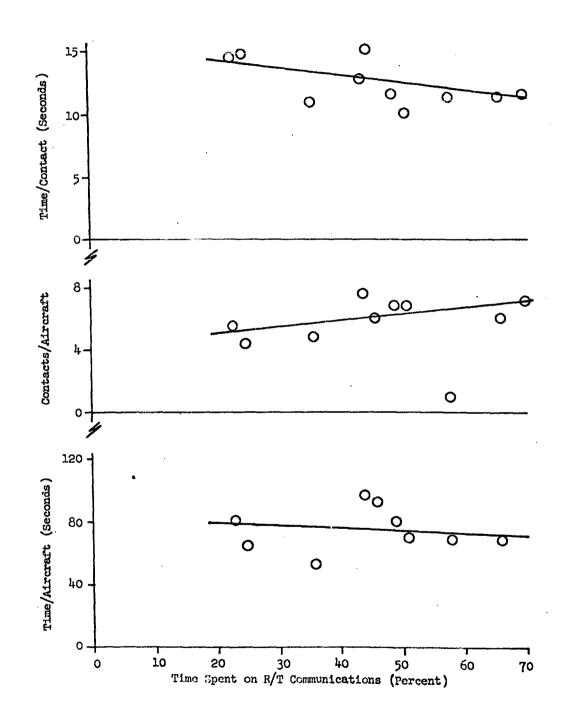


Figure III-47

## EFFECT OF COMMUNICATIONS LOAD ON TIME-RELATED MEASURES AT APPROACH CONTROL RADAR (Half-Hour Intervals)



#### EFFECT OF COMMUNICATIONS LOAD ON TIME-RELATED MEASURES AT APPROACH CONTROL RADAR

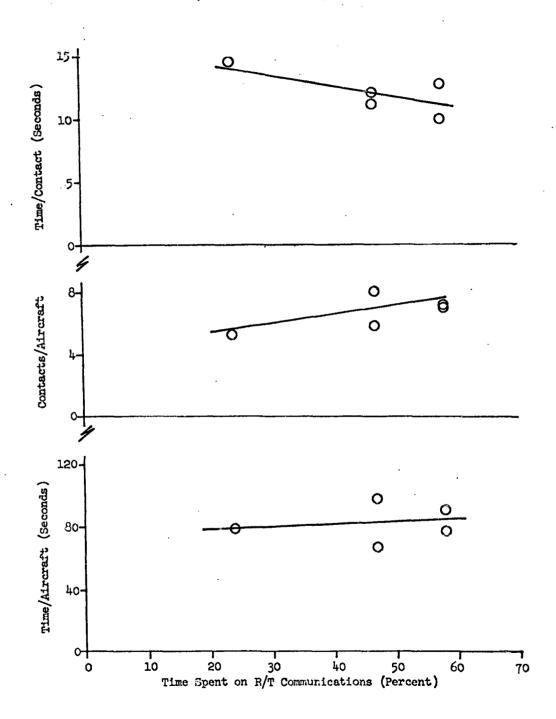


Figure III-49

EFFECT OF COMMUNICATIONS LOAD ON TIME-RELATED MEASURES AT APPROACH CONTROL RADAR

(Two-Hour Intervals)

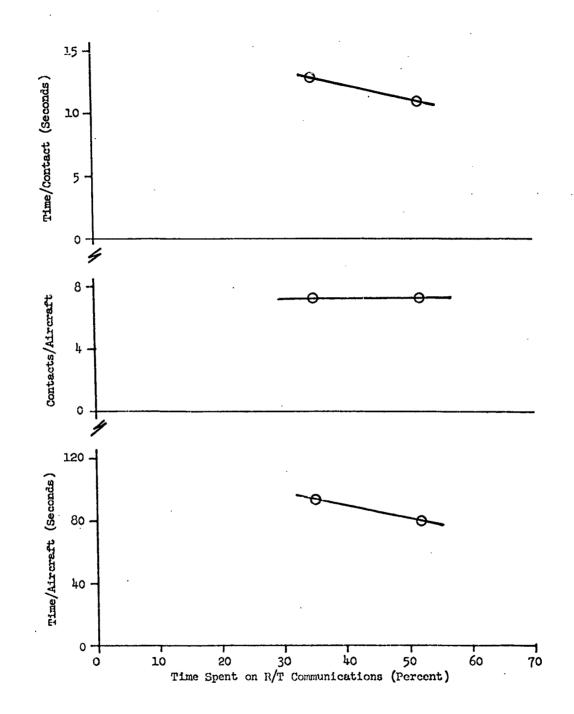
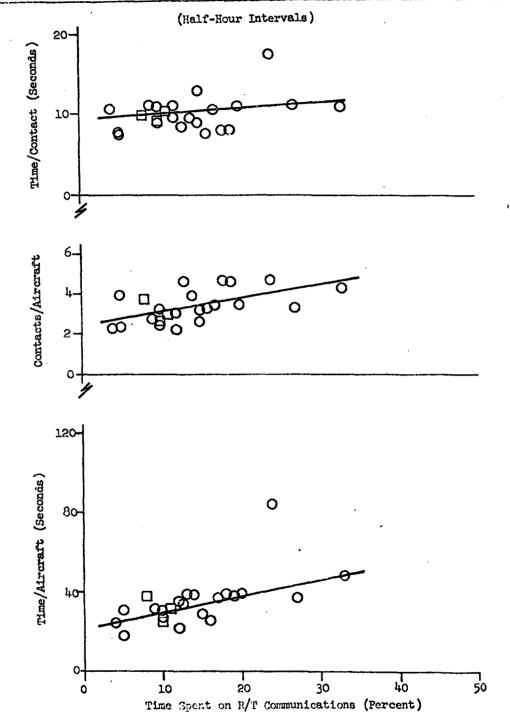
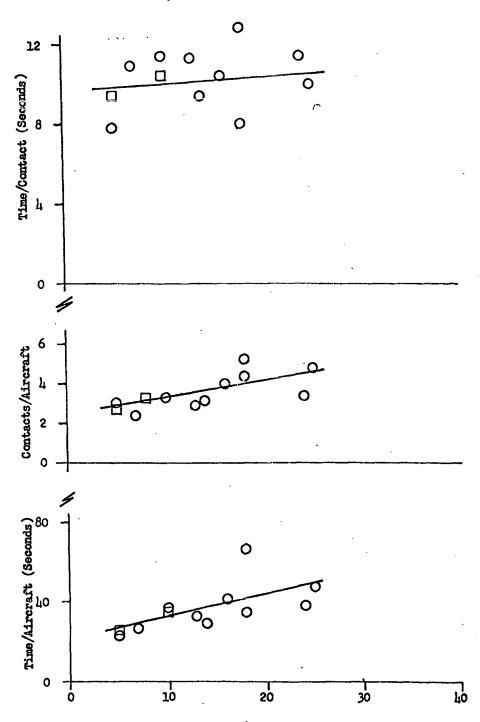


Figure III-50

## EFFECT OF COMMUNICATIONS LOAD ON TIME-RELATED MEASURES AT DEPARTURE CONTROL (ANC)

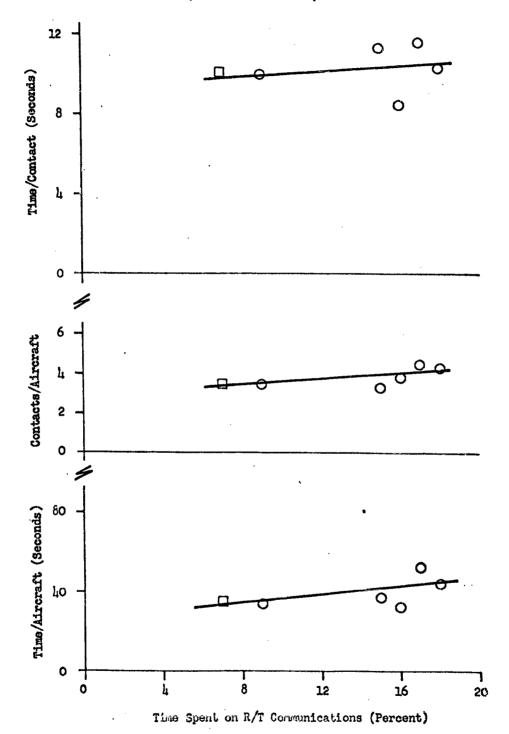




Time Spent on R/T Communications (Percent)

## EFFECT OF COMMUNICATIONS LOAD ON TIME-RELATED MEASURES AT DEPARTURE CONTROL POSITION (ANC.)

(Two-Hour Intervals)



#### EFFECT OF COMMUNICATIONS LOAD ON TIME-RELATED MEASURES AT DEPARTURE CONTROL RADAR

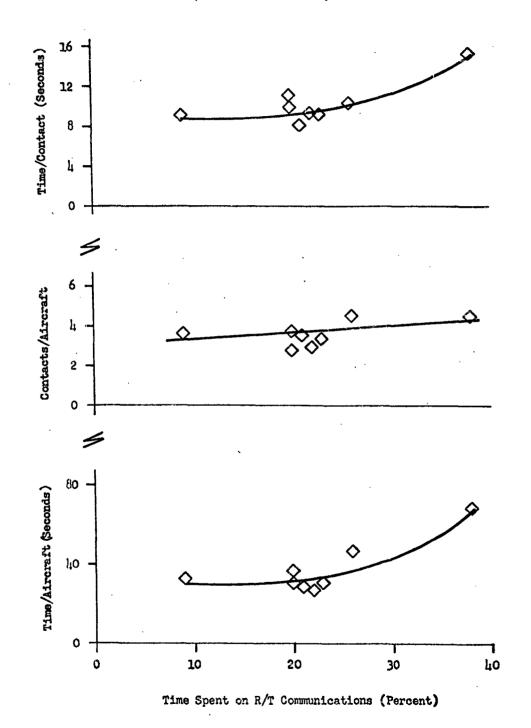


Figure III-54

## EFFECT OF COMMUNICATION LOAD ON TIME-RELATED MEASURES AT DEPARTURE CONTROL POSITION RADAR

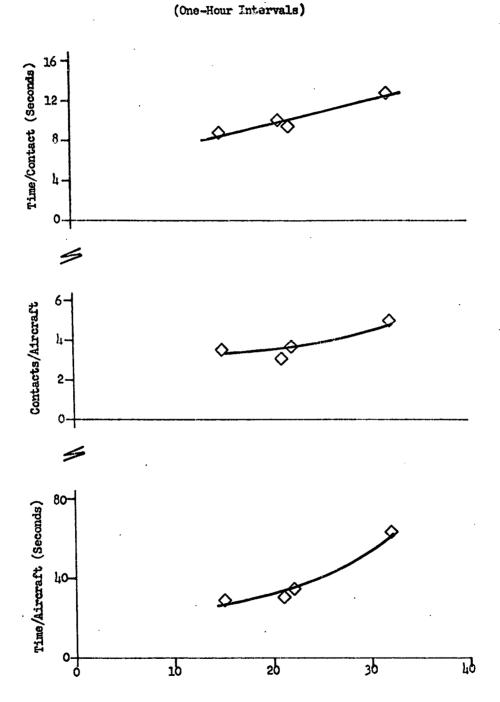
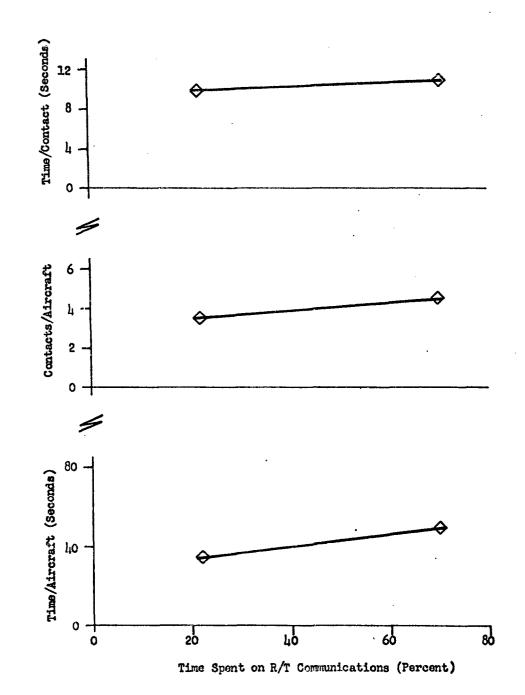


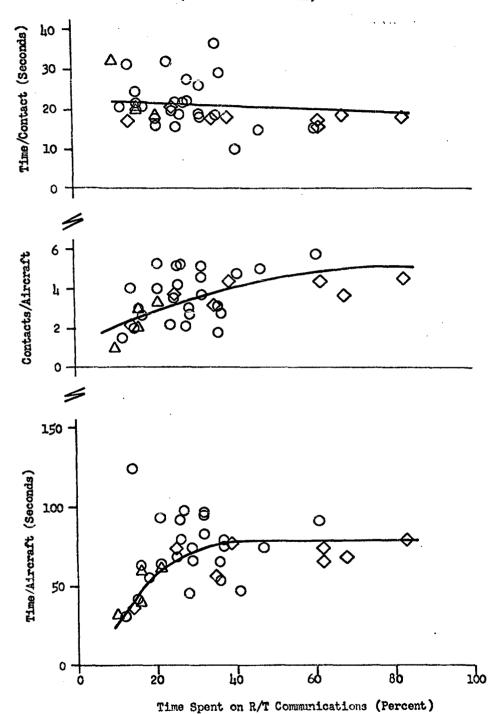
Figure III-55

# EFFECT OF COMMUNICATIONS LOAD ON TIME-RELATED MEASURES AT DEPARTURE CONTROL POSITION RADAR (Two-Hour Intervals)

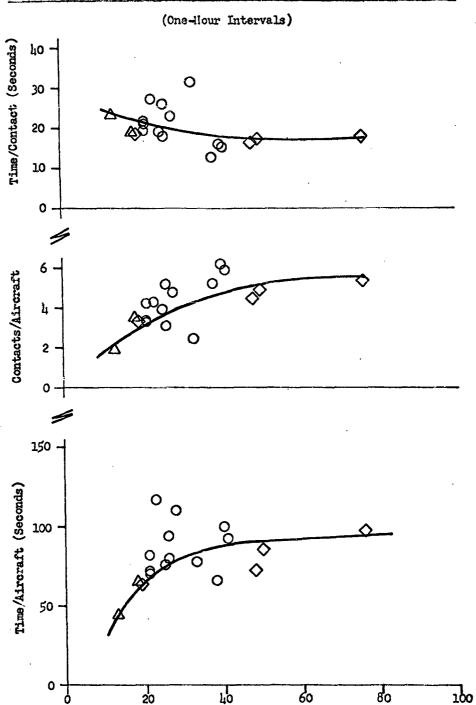


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#### EFFECT OF COMMUNICATIONS LOAD ON TIME-RELATED MEASURES AT D2 RADIO CONTROL



#### EFFECT OF COMMUNICATIONS LOAD ON TIME-RELATED MEASURES AT D2 CONTROL



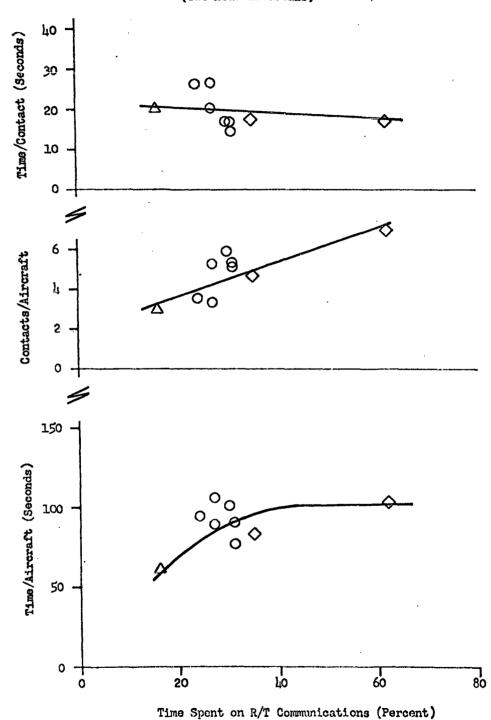
Time Spent on R/T Communications (Percent)

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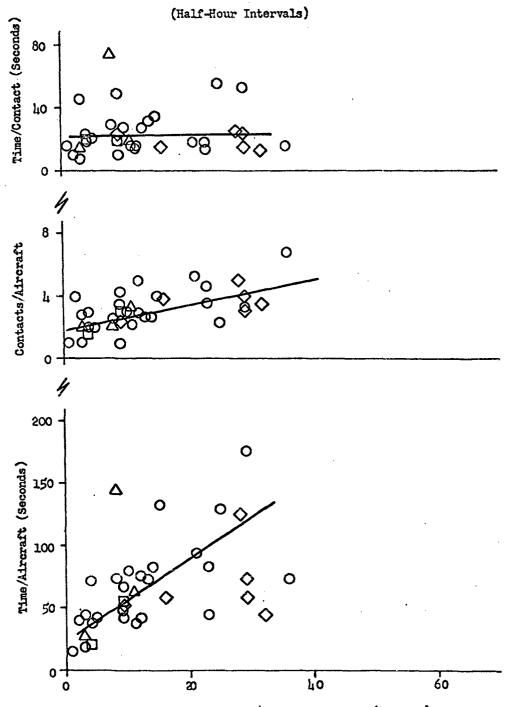
Figure III-58

#### EFFECT OF COMMUNICATIONS LOAD ON TIME-RELATED MEASURES AT D2 CONTROL

(Two-Hour Intervals)

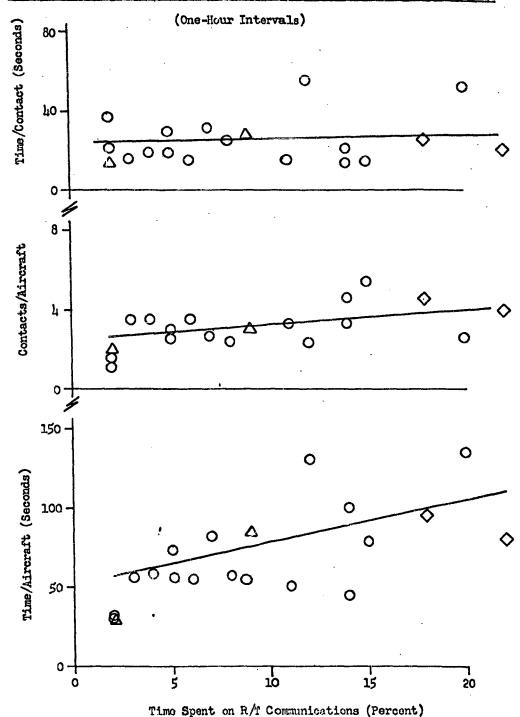


EFFECT OF COMMUNICATIONS LOAD ON TIME-RELATED MEASURES AT D3 RADIO CONTROL



Time Spent on R/T Communications (Percent)

## EFFECT OF COMMUNICATIONS LOAD ON TIME-RELATED MEASURES AT D3 RADIO CONTROL

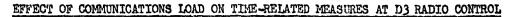


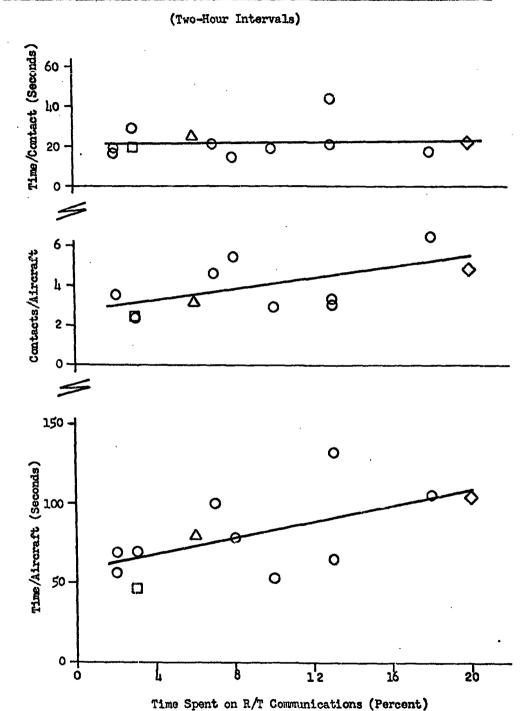
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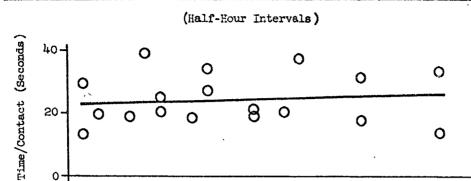
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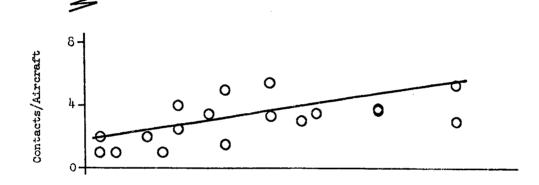
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EFFECT OF COMMUNICATIONS LOAD ON TEXE-RELATED MEASURES AT RADAR LA CONTROL





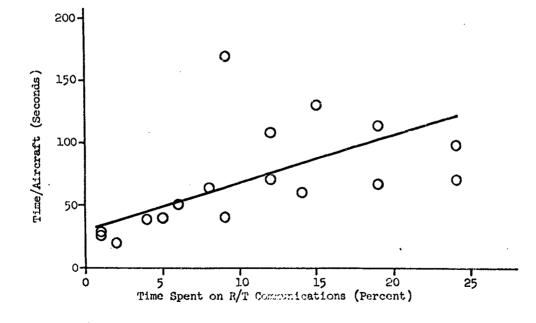


Figure III-63

## EFFECT OF COMMUNICATIONS LOAD ON TIME-RELATED MEASURES AT RADAR 1A CONTROL

(One-Hour Intervals)

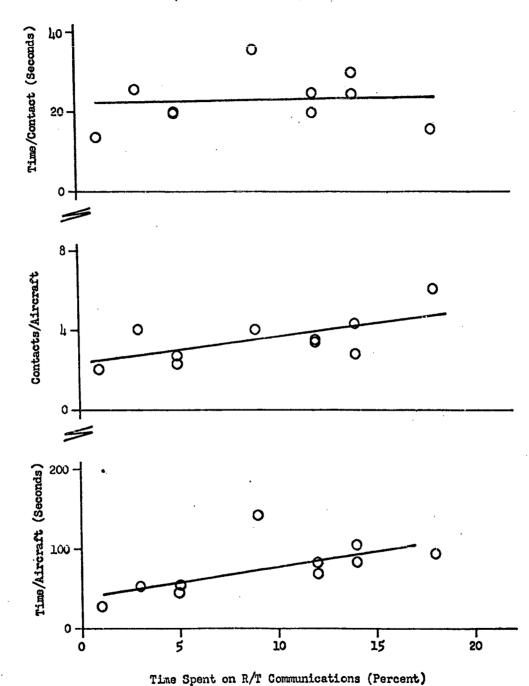
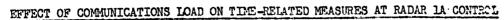
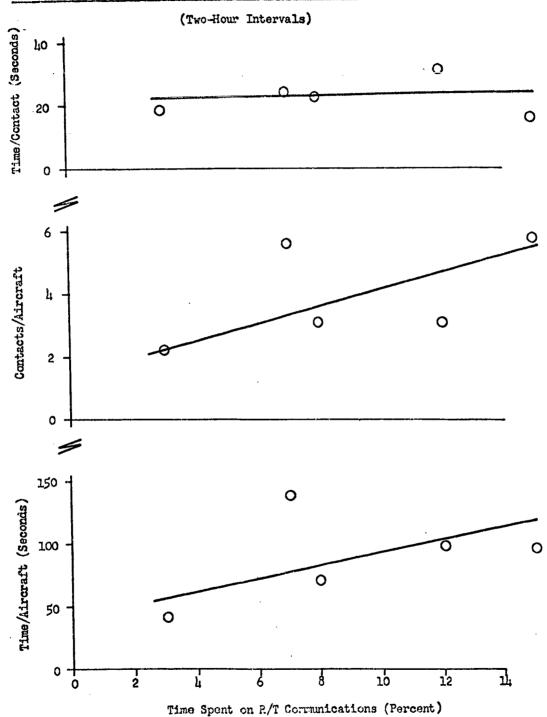


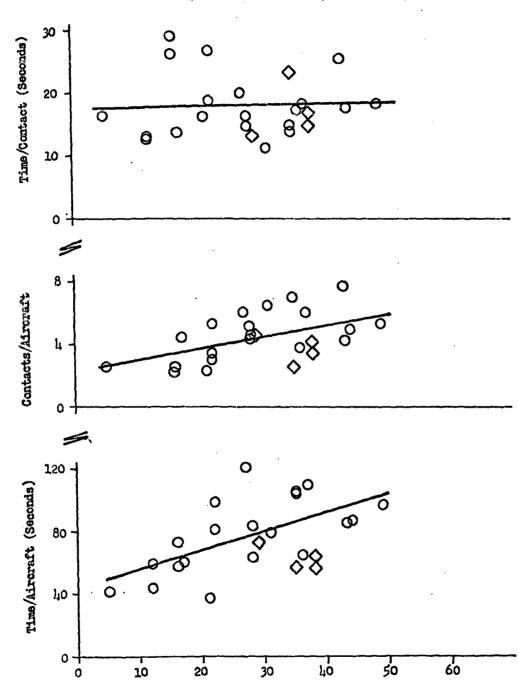
Figure III-14





# EFFECT OF COMMUNICATIONS LOAD TIME-RELATED MEASURES AT RADAR 1B CONTROL

(Half-Hour Intervals)



Time Spent on R/T Communications (Percent)

EFFECT OF COMMUNICATIONS LOAD ON TIME-RELATED MEASURES AT RADAR 1B CONTROL

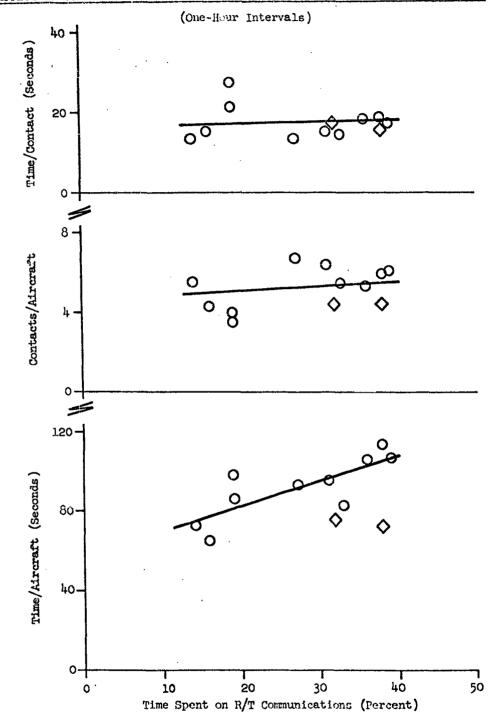
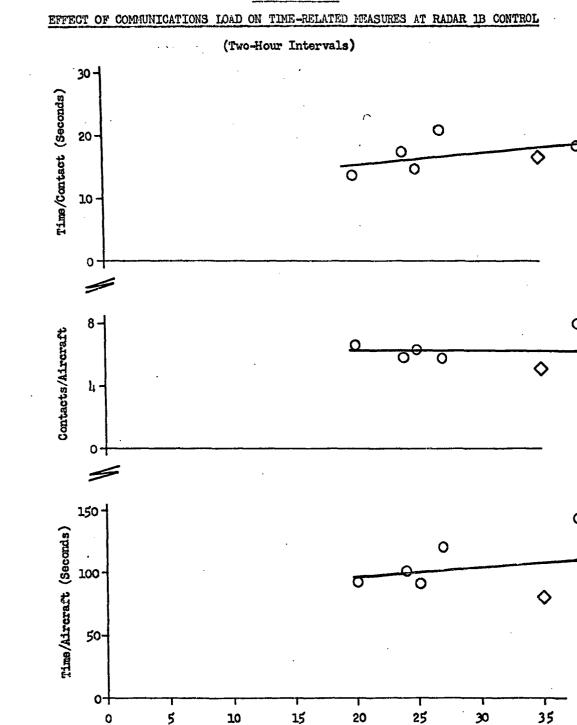


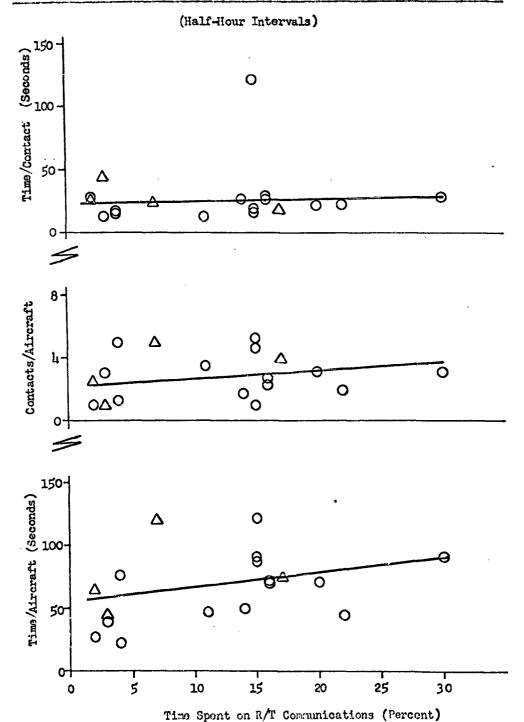
Figure III-67



Time Spent on R/T Communications (Percent)

Figure III-68

EFFECT OF COMMUNICATIONS LOAD ON TIME-RELATED MEASURES AT RADAR 2A CONTROL

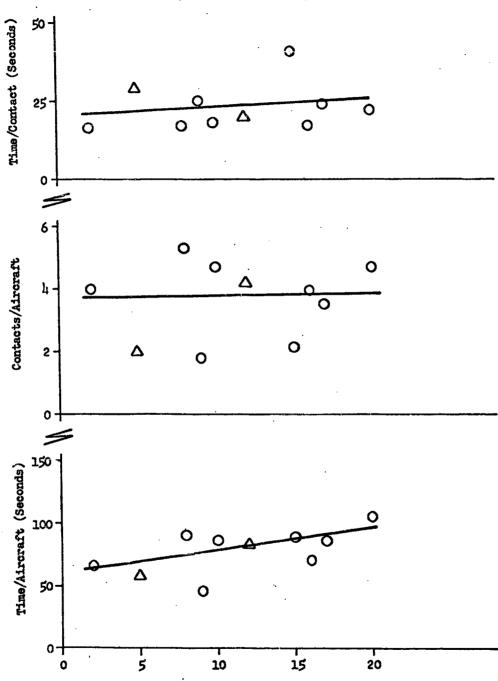


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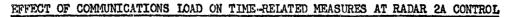
EFFECT OF COMMUNICATIONS LOAD ON TIME-RELATED MEASURES AT RADAR 2A CONTROL

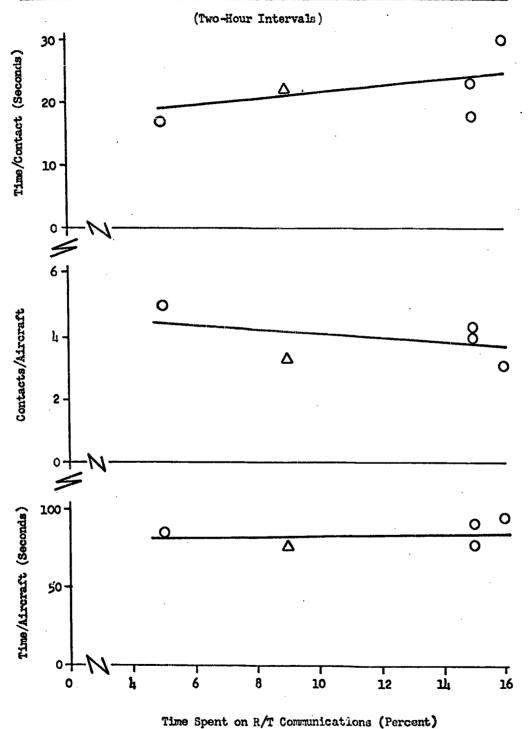
(One-Hour Intervals)



Time Spent on R/T Communications (Percent)

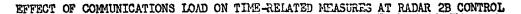
Figure III-70



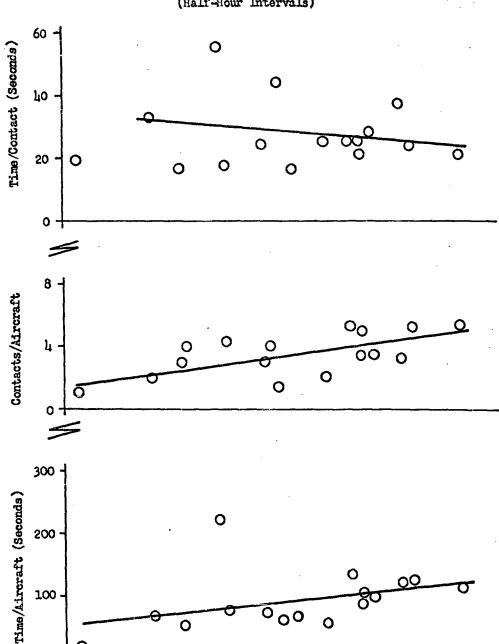


o <del>†</del>

Figure III-71



(Half-Hour Intervals)



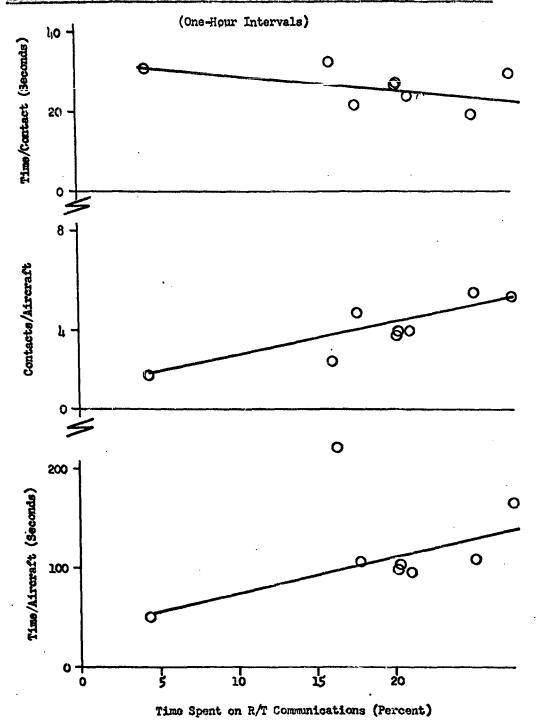
Time Spent on R/T Communications (Percent)

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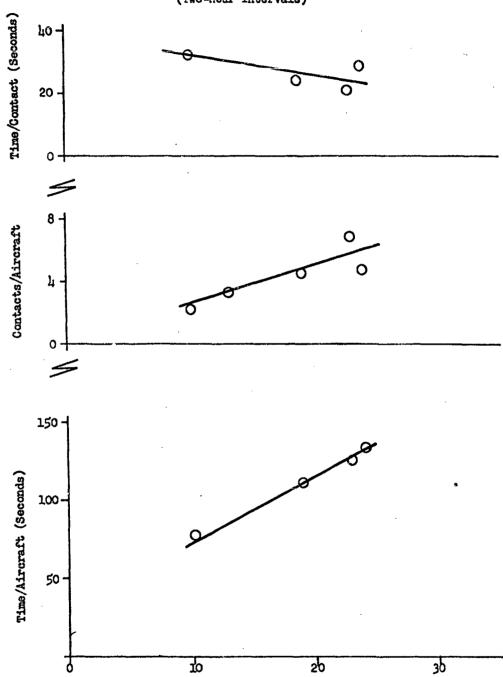
Figure III-72

EFFECT OF COMMUNICATIONS LOAD ON TIME-RELATED MEASURES AT RADAR 2B CONTROL



## EFFECT OF COMMUNICATIONS LOAD ON TIME-RELATED MEASURES AT RADAR 2B CONTROL

(Two-Hour Intervals)



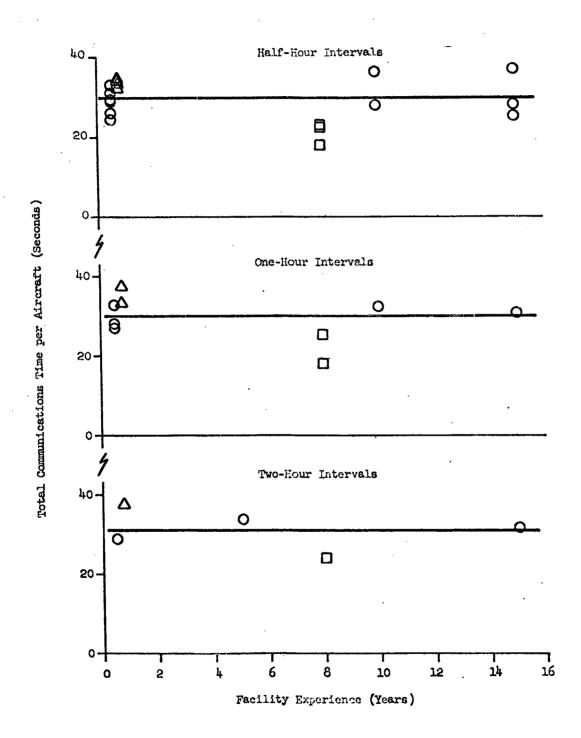
Time Spent on R/T Communications (Percent)

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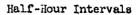
### 3. Effect of Experience on Total Communications Time.

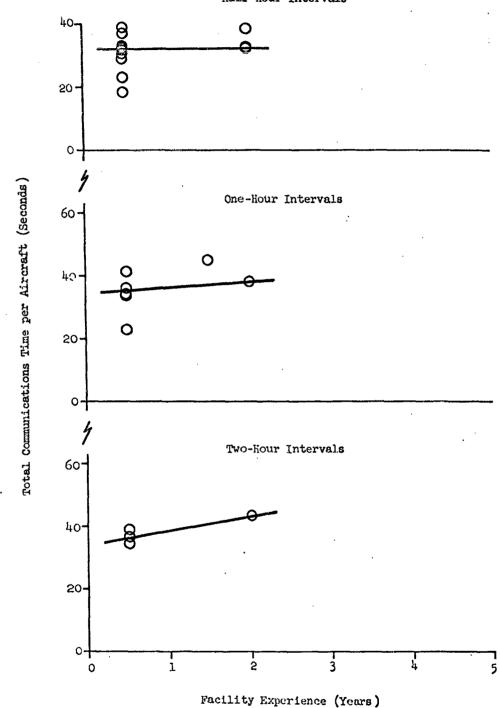
In Figures III-74 to III-83 the controller facility experience in years has been plotted against the total communications time per aircraft in seconds. Data for half-hour, one-hour, and two-hour intervals have been plotted for each control position. Note that the column of points above a given experience level in each chart of this cycle represents an individual controller in most cases.

## EFFECT OF EXPERIENCE ON GROUND CONTROL TOTAL COMMUNICATIONS TIME

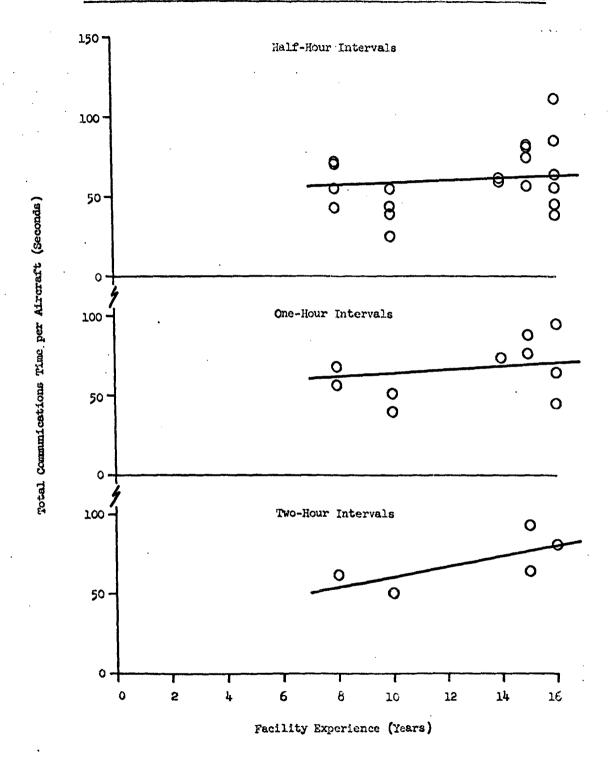


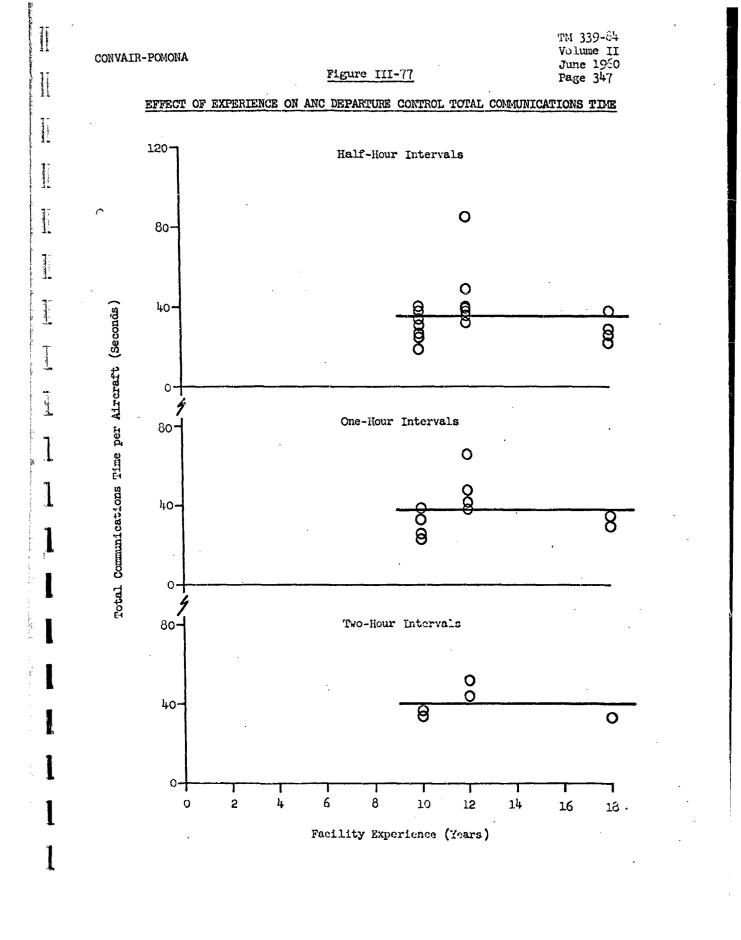
### EFFECT OF EXPERIENCE ON LOCAL CONTROL TOTAL COMMUNICATIONS TIME



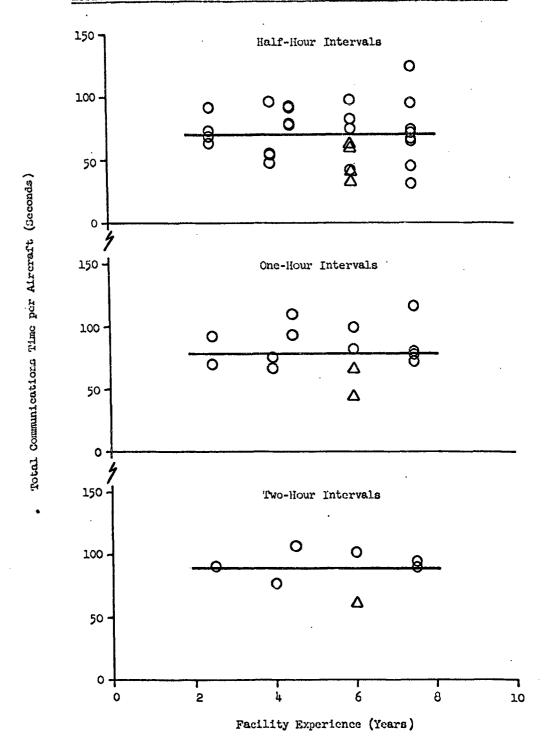


## EFFECT OF EXPERIENCE ON ANC APPROACH CONTROL TOTAL COMMUNICATIONS TIME





EFFECT OF EXPERIENCE ON D2 RADIO CONTROL TOTAL COMMUNICATIONS TIME



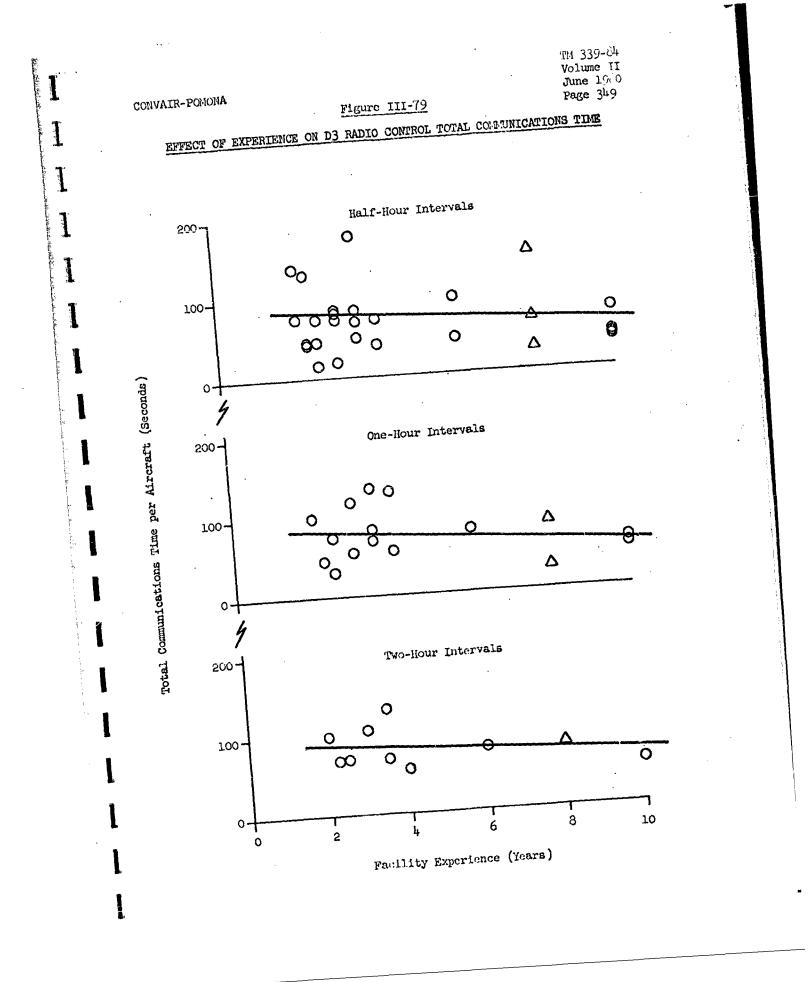
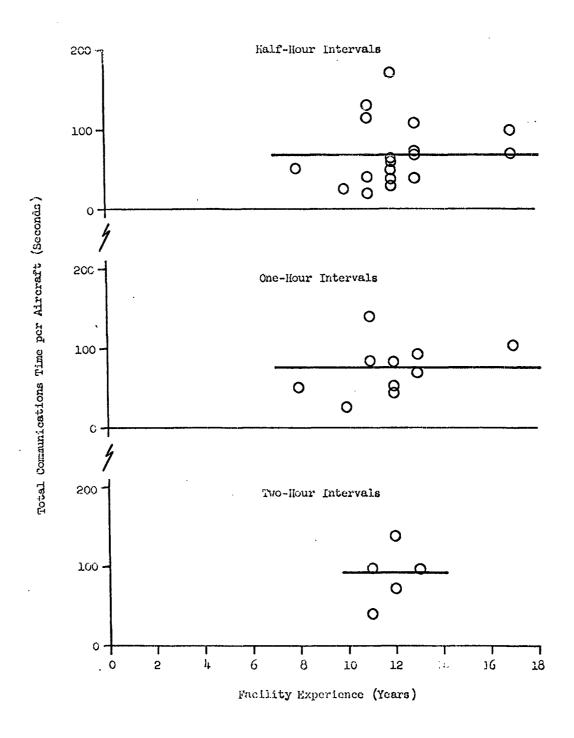


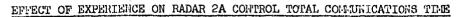
Figure III-80

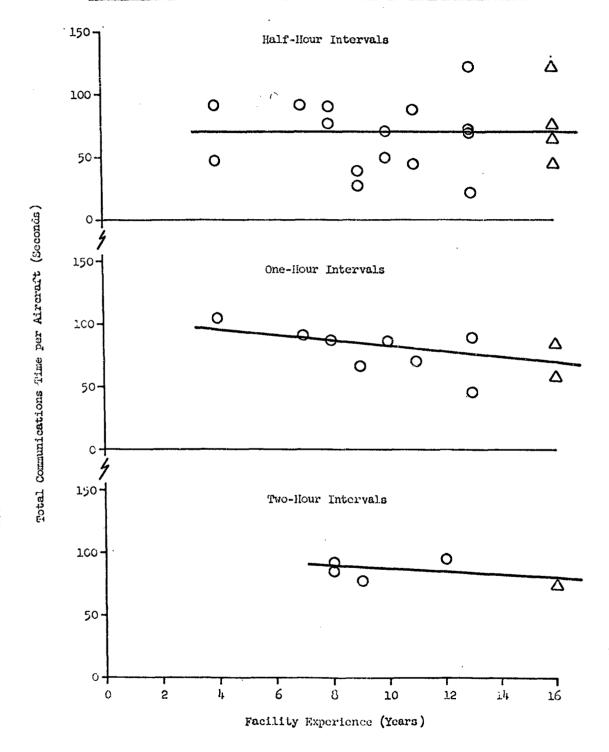
#### EFFECT OF EXPERIENCE ON RADAR LA CONTROL TOTAL COMMUNICATIONS TIME



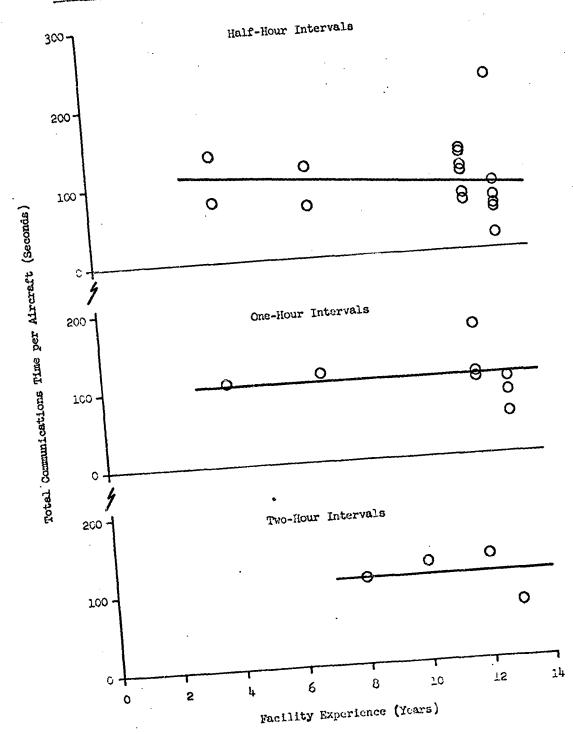
TH 330 Ch Volume II June 1950 Page 352

Figure III-82





# EFFECT OF EXPERIENCE ON RADAR 2B CONTROL TOTAL COMPUNICATIONS TIME



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### 4. Effect of Experience on Contact Time.

Figures III-84 to III-93 show the relationships between controller facility experience in years and the average time per contact per interval. Once again half-hour, one-hour, and two-hour intervals have been used for the analysis. Note that the column of points above a given experience level in each chart of this cycle represents an individual controller in most cases.

Figure III-84
EFFECT OF EXPERIENCE ON GROUND CONTROL CONTACT TIME

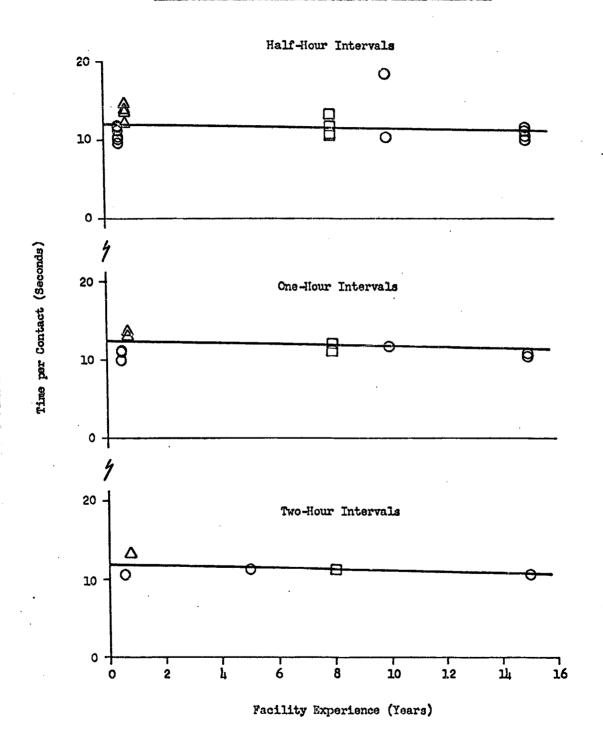


Figure III-85

### EFFECT OF EXPERIENCE ON LOCAL CONTROL CONTACT TIME

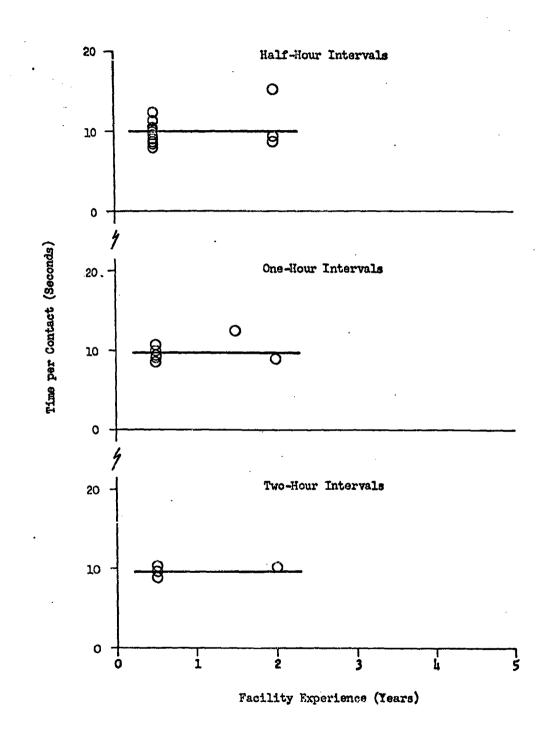


Figure III-86

### EFFECT OF EXPERIENCE ON ANC APPROACH CONTROL CONTACT TIME

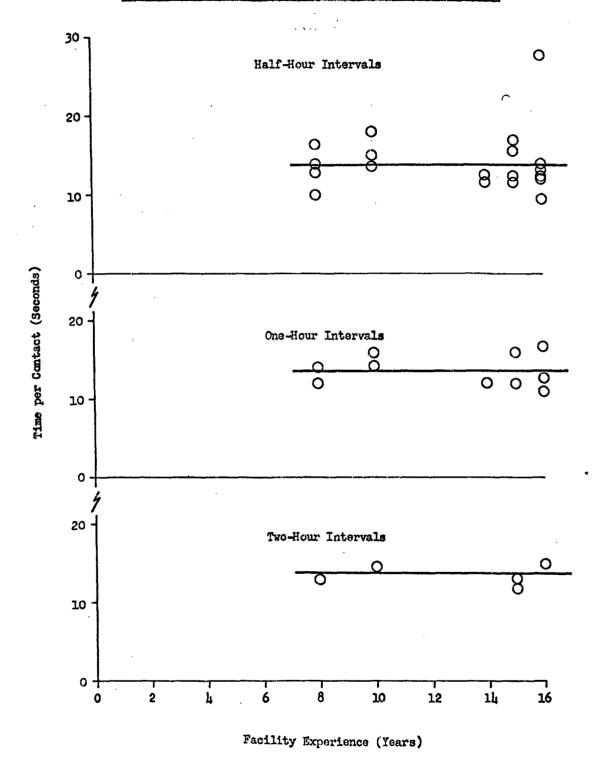


Figure III 87

# EFFECT OF EXPERIENCE ON ANC DEPARTURE CONTROL CONTACT TIME

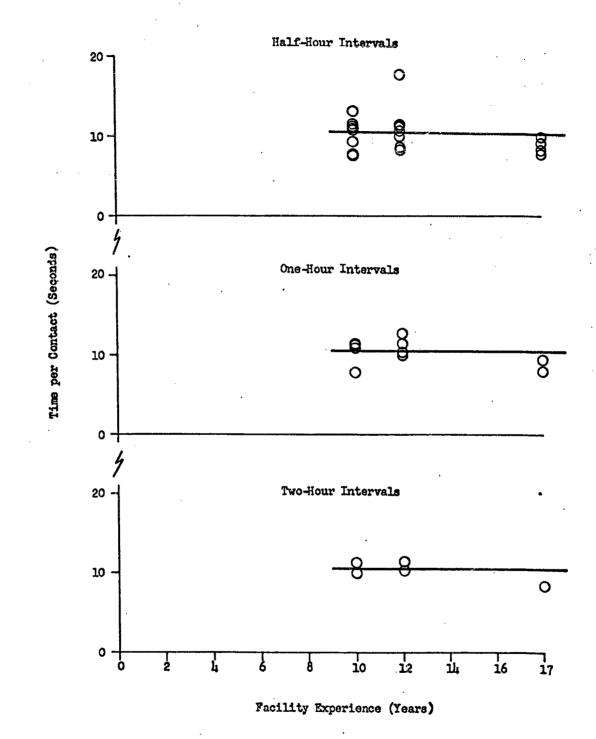


Figure III-88

### EFFECT OF EXPERIENCE ON D2 RADIO CONTROL CONTACT TIME

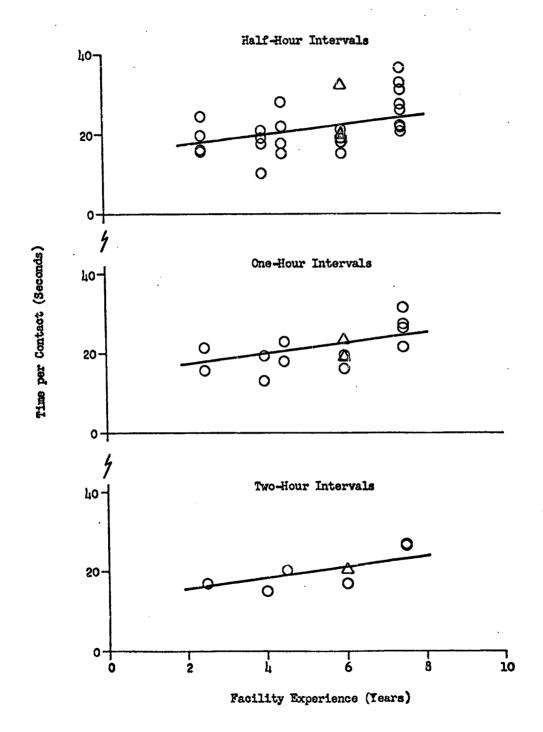


Figure III-90
EFFECT OF EXPERIENCE ON RADAR 1A CONTROL CONTACT TIME

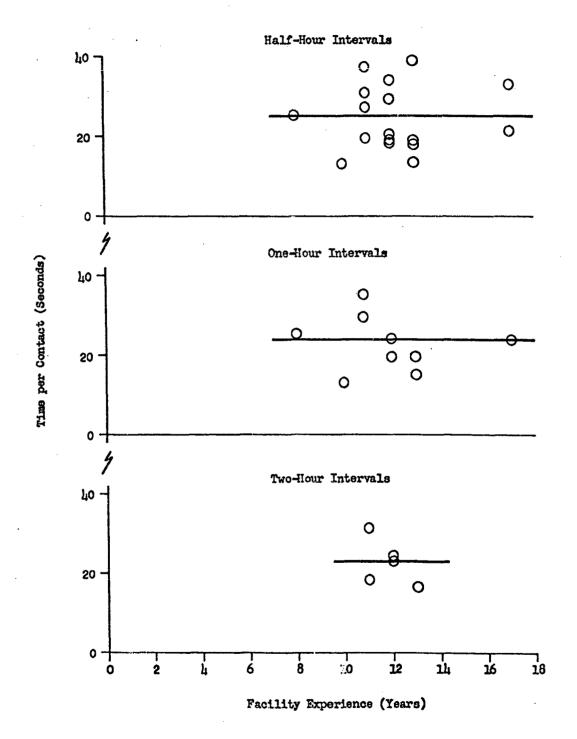


Figure III-91

### EFFECT OF EXPERILNCE ON RADAR 1B CONTROL CONTACT TIME

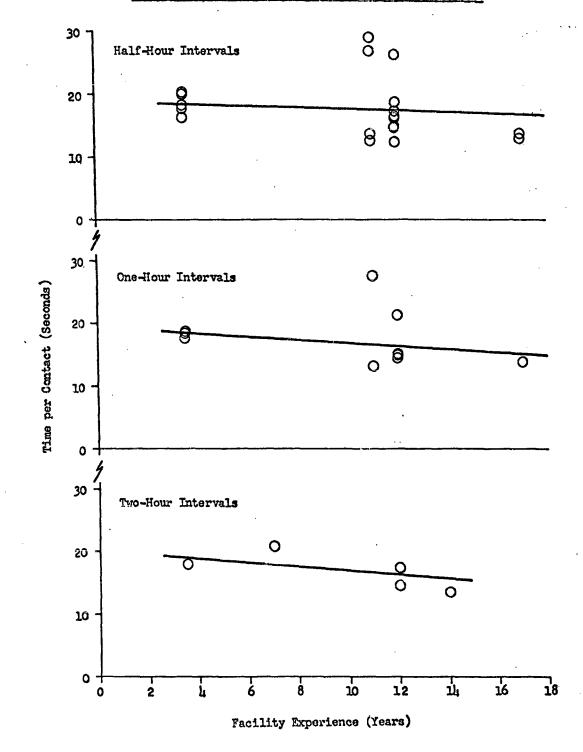


Figure III-92

### EFFECT OF EXPERIENCE ON RADAR 2A CONTROL CONTACT TIME

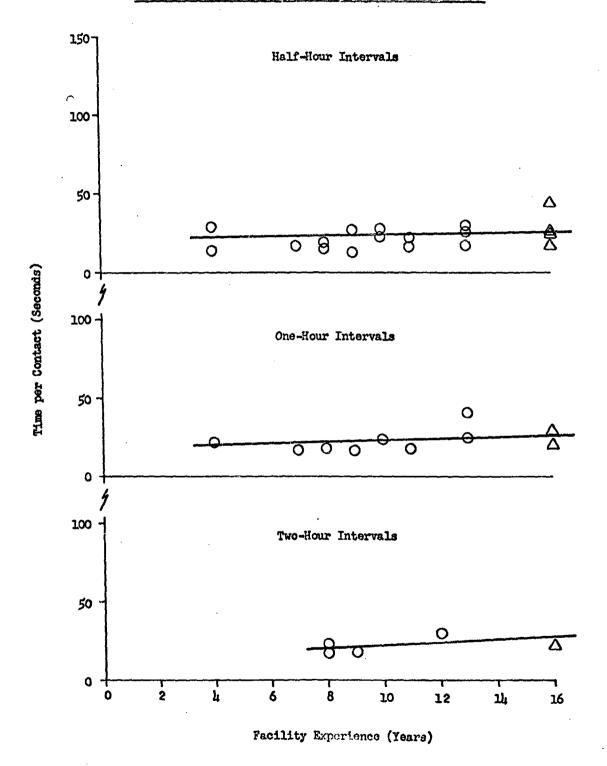
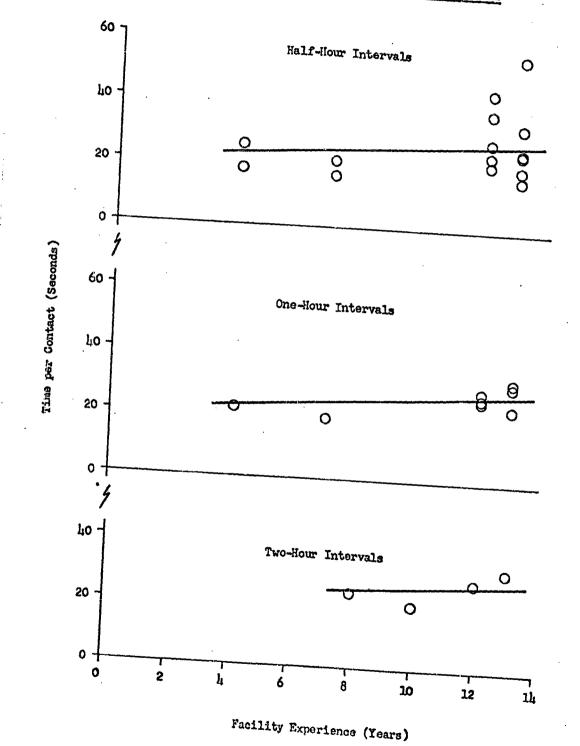


Figure III-93

EFFECT OF EXPERIENCE ON RADAR 2B CONTROL CONTACT TIME



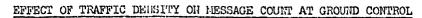
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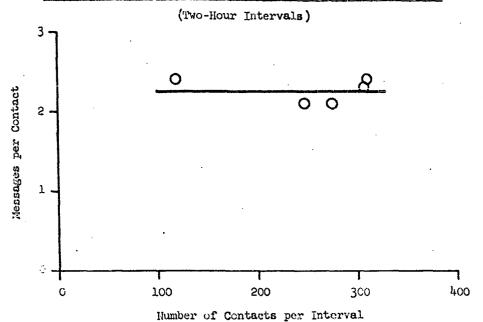
### 5. Effect of Traffic Density on Message Count.

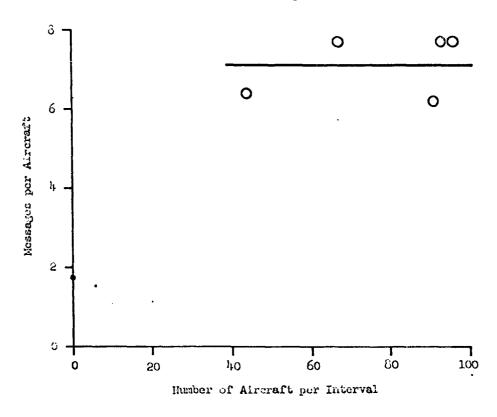
Figures III-94 to III-103 were prepared to explore the relationship between the density measures and the message rate. The top chart on each figure shows the average number of messages per contact over two-hour intervals plotted against the total number of contacts in the corresponding intervals. The lower chart shows the average number of messages per aircraft over two-hour intervals plotted against the total number of aircraft contacted in the corresponding two-hour intervals.

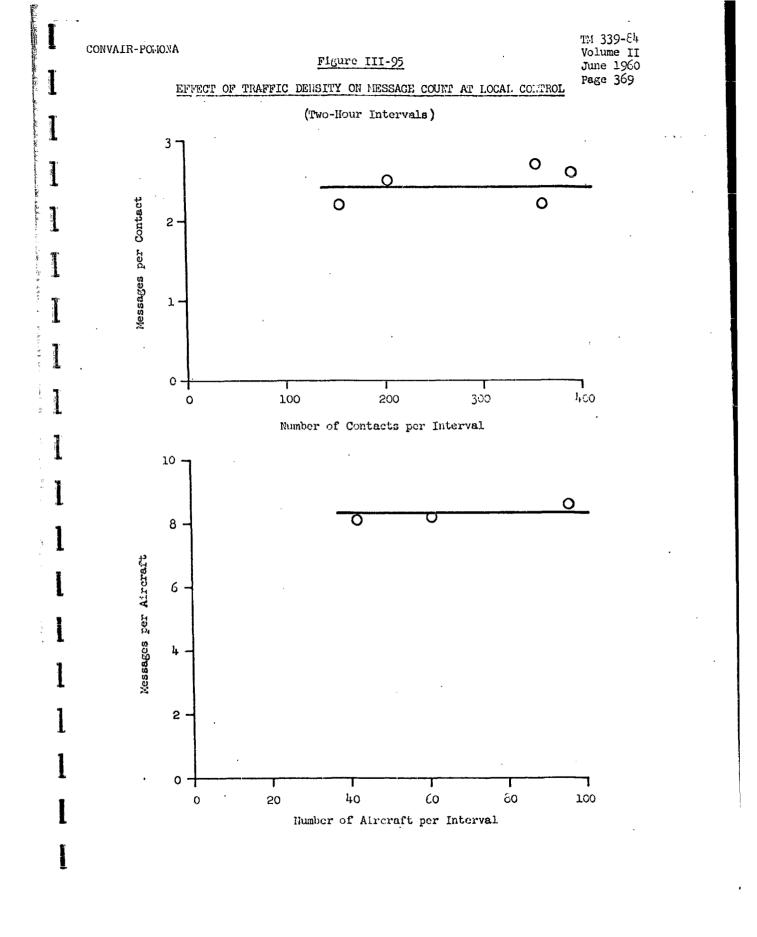
Page 368

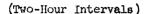
Figure III-94

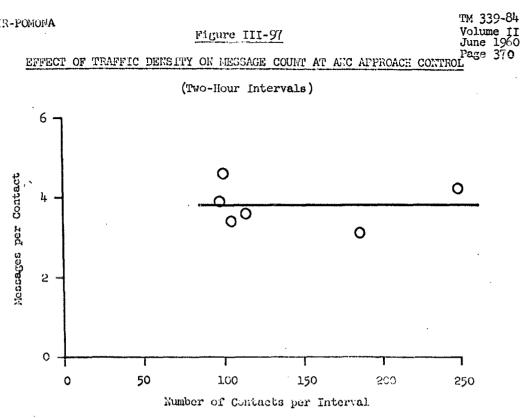


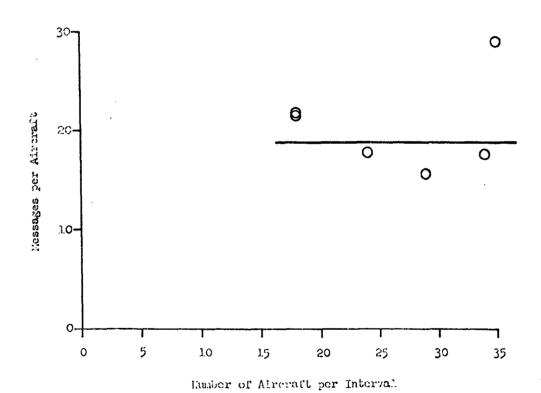












10 15 20 25 Number of Aircraft per Interval

30

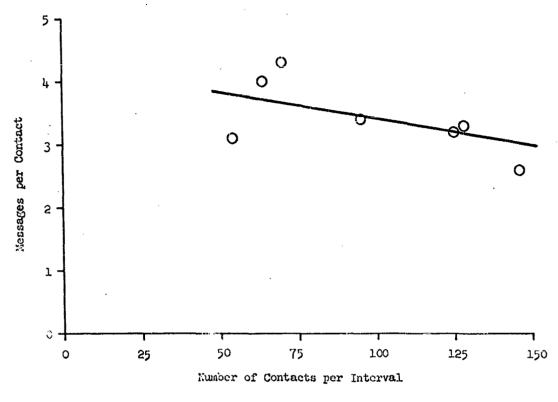
35

5

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### EFFECT OF TRAFFIC DENSITY ON MESSAGE COUNT AT D2 RADIO CONTROL

(Two-Hour Intervals)



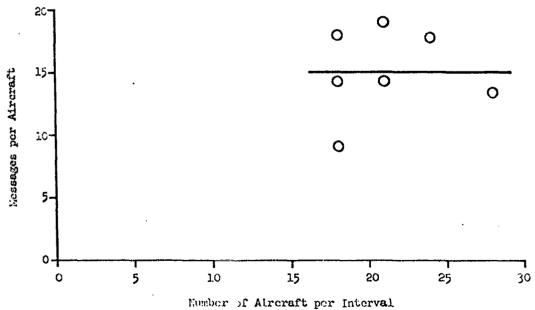
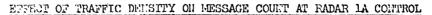
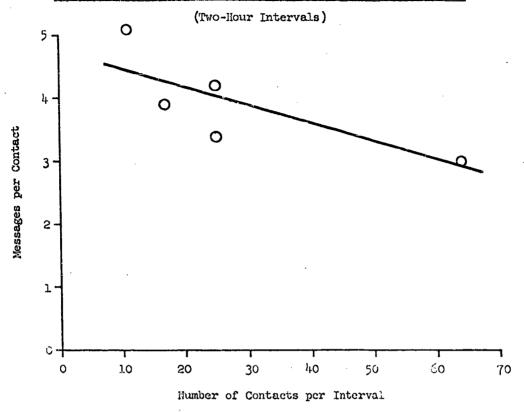
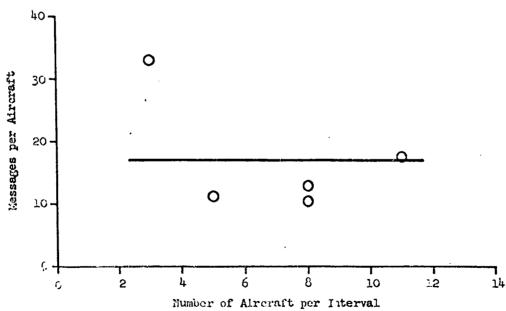


Figure III-100

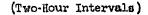


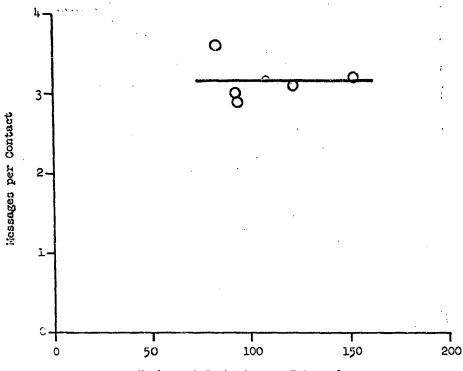




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EFFECT OF TRAFFIC DENSITY ON MESSAGE COUNT AT RADAR 1B CONTROL Page 375





### Number of Contacts per Interval

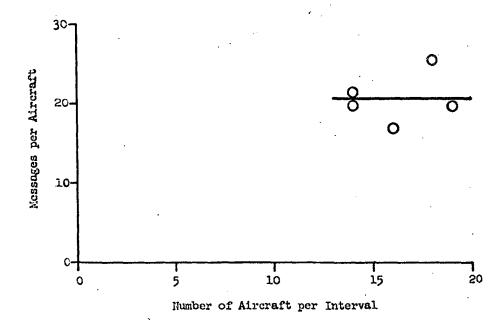
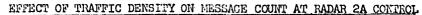
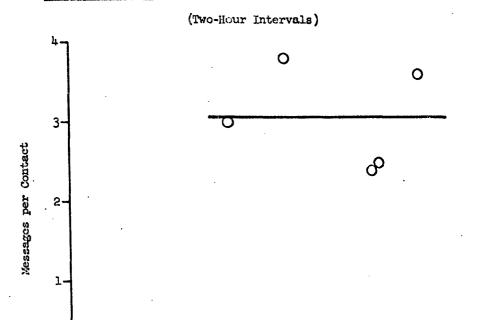


Figure III-102





Number of Contacts per Interval

30

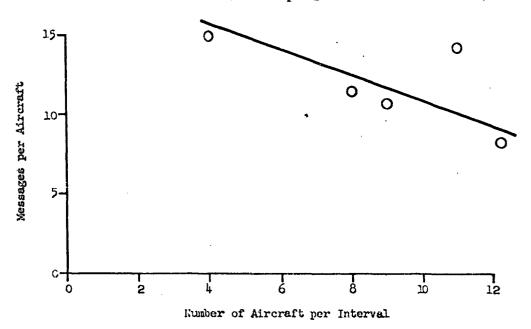
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40

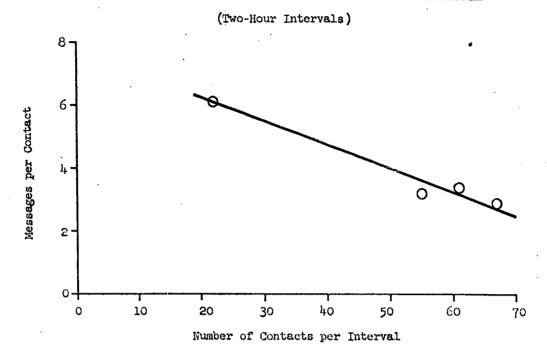
50

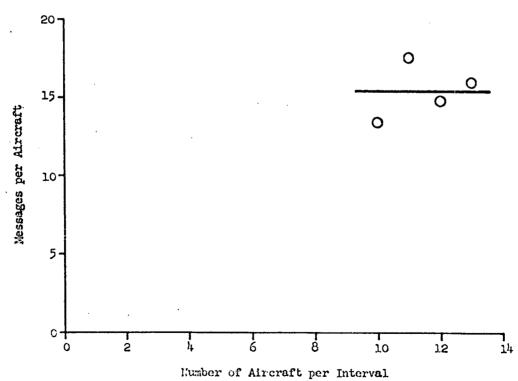
10

0



### EFFECT OF TRAFFIC DENSITY ON MESSAGE COUNT AT RADAR 2B CONTROL

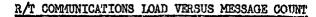


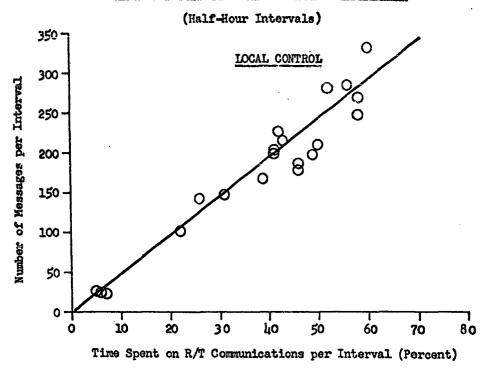


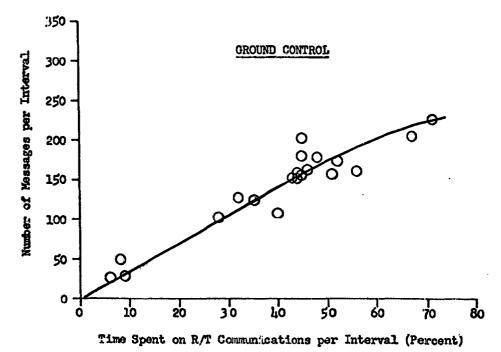
# 6. R/T Communications Lead Versus Hessage Count.

The relationships between communications load and message count are further illustrated in Figures III-104 to III-108. In the chart cycle the average number of messages per half-hour interval is related to the average R/T communications load in the corresponding interval.

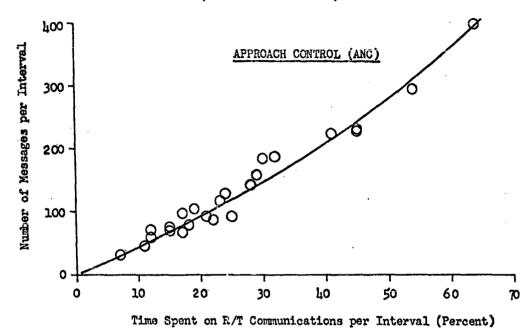
Figure III-104

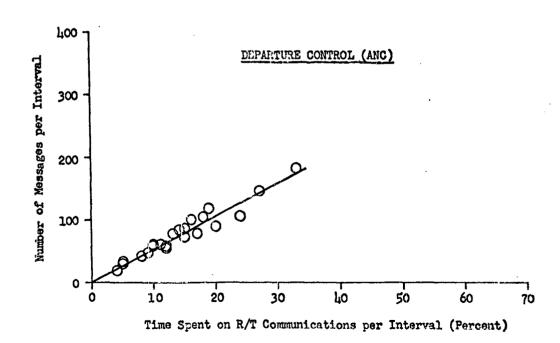




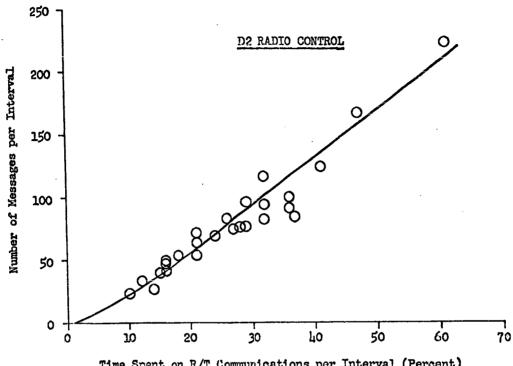


### R/T CONTUNICATIONS LOAD VERSUS MESSAGE COUNT

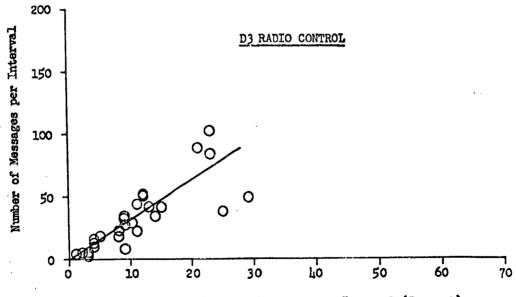




# R/T COMMUNICATIONS LOAD VERSUS MESSAGE COUNT

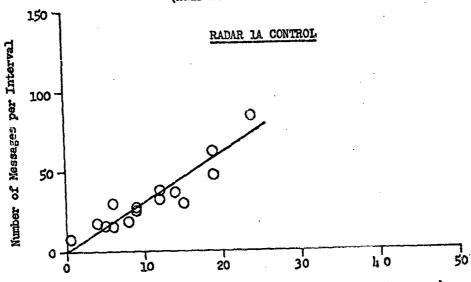


Time Spent on R/T Communications per Interval (Percent)



Time Spent on R/T Communications per Interval (Percent)

# R/T COMMUNICATIONS LOAD VERSUS MESSAGE COUNT



Time Spent on R/T Communications per Interval (Percent)

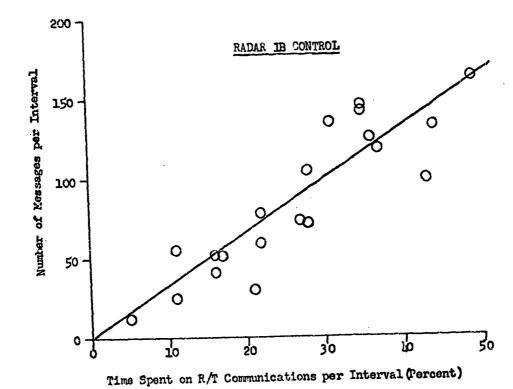
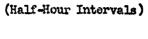
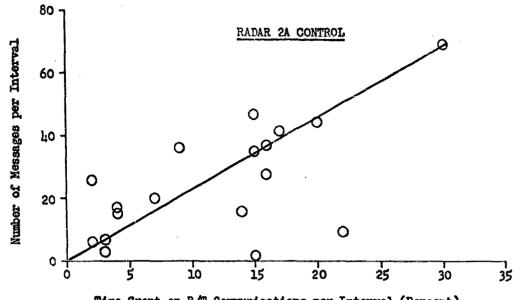


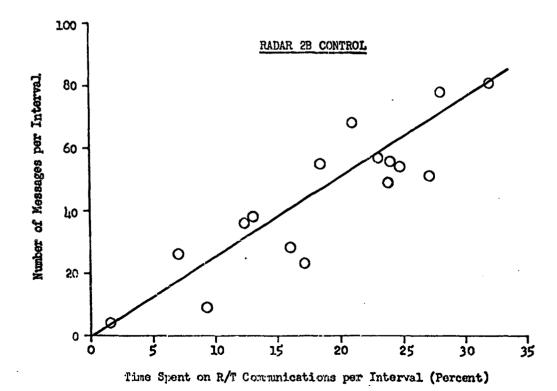
Figure III-108

### R/T COMMUNICATIONS LOAD VERSUS MESSAGE COUNT





Time Spent on R/T Communications per Interval (Percent)



#### 7. Traffic Load Versus R/T Communications Load

Figure III-109 summarizes the relationships between traffic load and R/T communications load for all of the control positions which were studied. Linear extrapolation to the 100% communications level was made and the dotted portion of each line represents the extrapolation. The point at which these lines reach the 100% communications level represents the number of aircraft which would normally result in communications saturation for the controller. Because of variation in the number of aircraft which can produce a given R/T communications load, and because of some uncertainty in the behavior of the graphs at the near-saturation level, it is more meaningful and accurate to express this saturation as a range of values rather than a single value. The range from the minimum to the maximum number of planes which could produce R/T communications saturation is shown in Table III-1.

Figures III-110 to III-115 illustrate the absolute minimum and maximum communications saturation levels which were established by drawing a boundary line through the extreme point on each side of the mean line.

Table III-1

# MINIMUM AND MAXIMUM R/T COMMUNICATIONS SATURATION LEVELS IN NUMBER OF AIRCRAFT CONTACTED PER HALF-HOUR INTERVAL

	NUMBER OF	AIRCRAFT
POSITION	MINIMUM	MAXIMUM
TOWER		· · · · · · · · · · · · · · · · · · ·
Ground Control (without Cl.Del.Pos.,1959)	42.0	56.6
Ground Control (with Cl.Del.Pos.,1960)	61.4	88.5
Local Control (1959 and 1960)	49-4	67.3
Approach Control (ANC, 1959)	25.2	33.5
Approach Control (Radar, 1960)	21.5	27.4
Departure Control (ANC, 1959)	46.3	60.4
Departure Control (Radar, 1960)	43.5	56.8
CETTER	·	
D2 Radio Control (1959 and 1960)	23.0	30.6
D3 Radio Control (1959)	20.8	27.9
D3 Radio Control (1960)	******	*****
Radar 1A Control (1959)	20.0	26.8
Radar 1B Control (1959)	19.3	23.6
Radar 1B Control (1960)	27.8	30.3
Radar 2A Control (1959)	20.2	27.1
Radar 2B Control (1959)	17.0	21.0

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Figure III-110
TRAFFIC LOAD VERSUS R/T COMMUNICATIONS LOAD

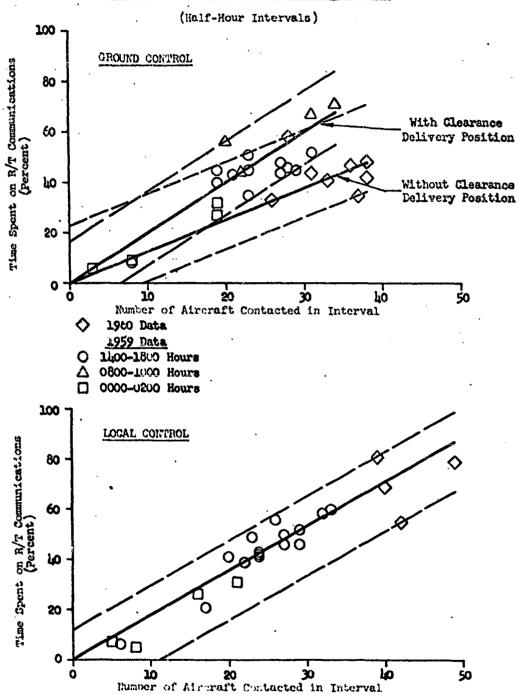
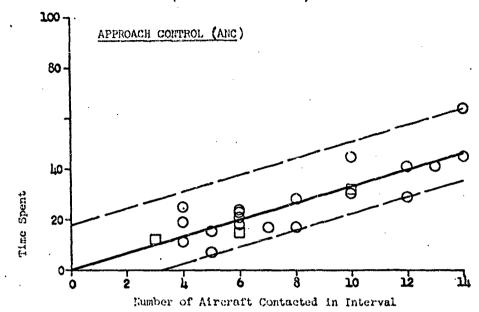


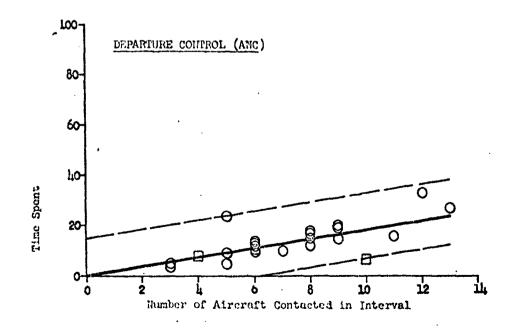
Figure III-111

### TRAFFIC LOAD VERSUS R/T COMMUNICATIONS LOAD

(Half-Hour Intervals)

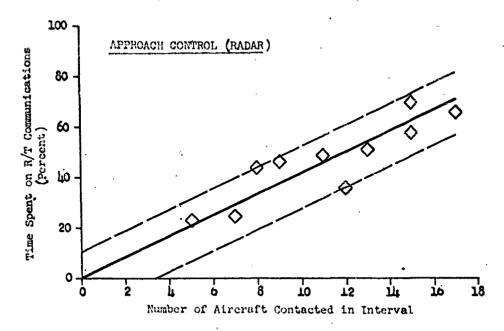


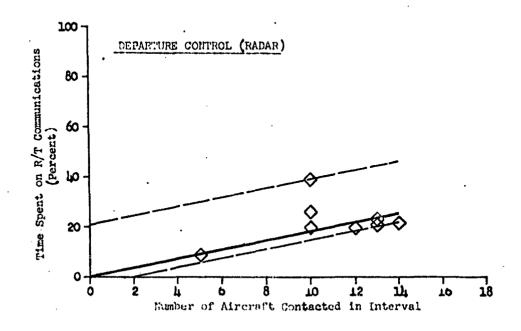
O 1059 Data
O 1000-1800 Hours
D 0000-0200 Hours



### TRAFFIC LOAD VERSUS R/T COMMUNICATIONS LOAD

(Half-Hour Intervals-1900 Data)





### TRAFFIC LOAD VERSUS R/T COMMUNICATIONS LOAD

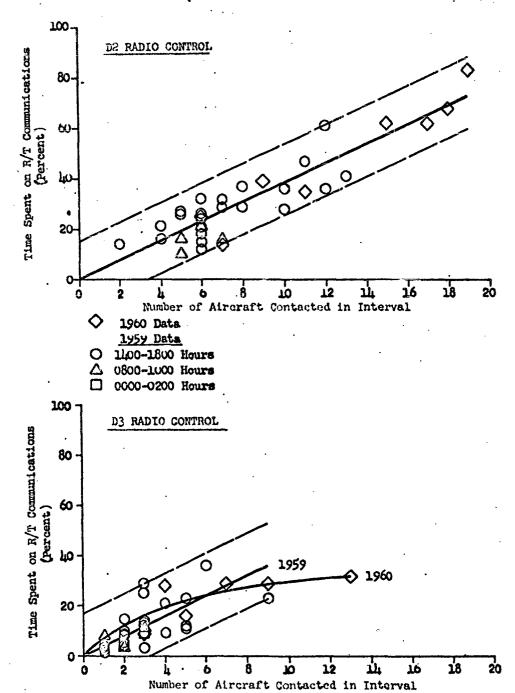
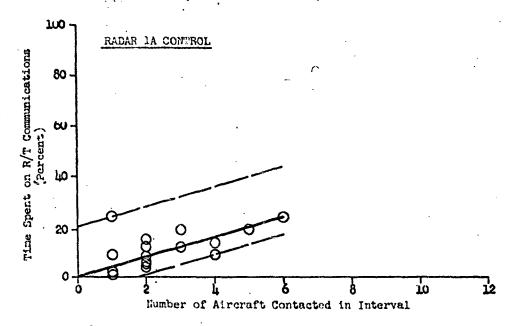
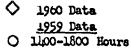


Figure III-114

### TRAFFIC LOAD VERSUS R/T COMMUNICATIONS LOAD





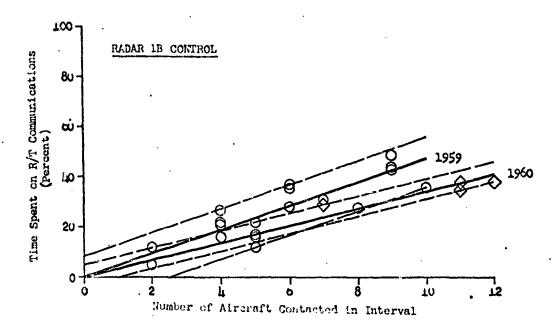
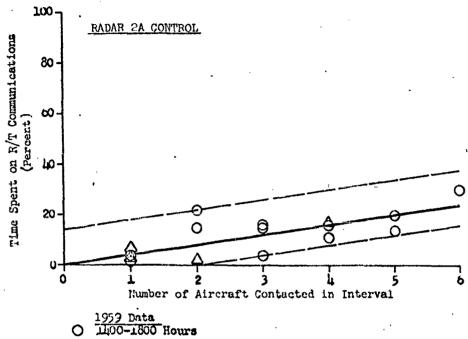


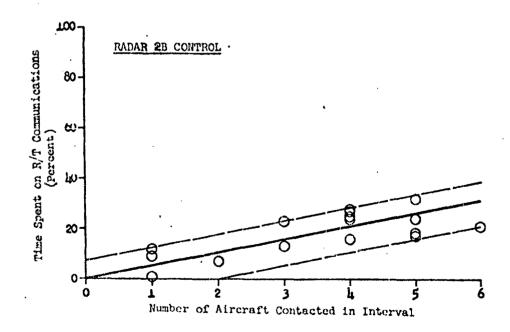
Figure III-115

### TRAFFIC LOAD VERSUS R/T COMMUNICATIONS LOAD

(Half-Hour Intervals)



△ 0800-1000 Hours



### B. ANALYTICAL TABLES

### 1. Comparative Communications Statistics

Tables III-2, III-3 and III-4 present some comparative communications statistics. The first numerical column - Composition of Number of Planes Contacted - should be used as the reference column in making comparisons. For example, Table III-2 shows that the Air Carrier category represented 70.8% of the planes contacted by the Ground Control position. Comparing this to the next column it can be seen that the Air Carrier category occupied a smaller percentage of the communications time (65.4%). This is another way of illustrating that the Air Carrier group on the average required less communications time per plane at the Ground Control position. Note that the composition percentages for the three aviation categories add to 100%.

COMPARATIVE TOWER COMMUNICATION

POSITION AND SAMPLE SIZE	AVIATION CATEGORY	COMPOSITION OF NUMBER OF PLANES CONTACTED (PERCENT)	COMPOSITION OF COMMUNICATIONS TIME (PERCENT)	COMPOSITION NUMBER OF COI (PERCENT
GROUND CONTROL		70.8 10.5	65.4 15.6	65.2
(10 Hours 1959)	Gen. Aviation		19.0	12.4 22.4
LOCAL CONTROL		<b>7</b> 0.0	62.5	68.2
(10 Hours 1959)	Military Gen.Aviation	7.8 22.2	11.0 26.5	10.4 21.4
APPROACH	Air Carrier	89.9	87.8	89.9
CONTROL (ANC)	Military	7.0	11.4	7.0
(12 Hours 1959)	Gen. Aviation	3.2	0.8	3.2
DEPARTURE CONTROL (ANC)	Air Carrier	96.6 2.0	95 <b>.</b> 1 3 <b>.</b> 4	97.2 1.9
(12 Hours 1959)			1.5	0.9
LOCAL CONTROL		67.6	66.3	61.2
(2 Hours 1960)	Military Gen. Aviation	7•2 25•2	8.9 24.8	10.1 28.6
GROUND CONTROL		69.3	60.9	65.5
(4 Hours 1960)	Military Gen. Aviation	4.5 26.2	7.8 31.2	6.2 28.3
	Air Carrier	76.3	74.6	75.9
CONTROL (RADAR) (5 Hours 1960)	Military Gen. Aviation	3.0 20.7	5•3 21•0	19.5
	Air Carrier	89.7	89•5	88.7
CONTROL (RADAR)	Military	1.3	1.0	1.0
1,000	AT A COLUMN			
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	<u> </u>			

Table III-2

COMPARATIVE TOWER COMMUNE:CATIONS STATISTICS BY AVIATION CATEGORY

7	COMPOSITION OF COMMUNICATIONS TIME	COMPOSITION OF NUMBER OF CONTACTS		MPOSITION A MESSAGES		TNEO 12	OMPOSITION	OF	i
	(PERCENT)	(PERCENT)	PILOT	ONTROLLER	OVERALL	PILOT	ATION MESSA CONTROLLER	OVERALL.	P:
								A A southern	
	65.4 15.6 19.0	65.2 12.4 22.4	79.0 9.7 11.3	64.2 1.4.2 21.7	73.6 11.3 15.1	65.1 11.9 23.0	68.0 11.7 20.4	67.3 11.7 21.0	
	62.5 11.0 26.5	68.2 10.4 21.4	67.9 7.6 24.5	70.8 7.2 22.0	69.1 7.4 23.5	71.2 8.7 20.1	67.0 10.3 22.7	67 <b>.</b> 9 9 <b>.</b> 9 22 <b>.</b> 2	
	87.8 11.4 0.8	89.9 7.0 3.2	93.8 5.7 0.5	85.4 13.5 1.1	91.5 7.8 0.7	92.5 7.5 —	90.8 8.9 0.3	91.4 8.4 0.2	
	95.1 3.4 1.5	97.2 1.9 0.9	96.6 1.4 2.0	98.3 1.2	97.0 1.3 1.7	96.1 2.9 1.0	97.2 1.6 1.2	96.7 2.3 1.0	ב
	66.3 8.9 24.8	61.2 10.1 28.6	65.3 7.4 27.3	62.6 3.7 33.7	63.7 5.3 31.0	57.4 6.0 36.6	60.6 7.3 32.1	59•7 6•9 33•4	
	60.9 7.8 31.2	65.5 6.2 28.3	79.1 6.3 14.5	53.2 3.2 43.6	71.8 5.5 22.7	64.5 12.6 22.9	59.8 7.3 32.9	60.9 8.5 30.6	
	74.6 5.3 21.0	75.9 4.6 19.5	82.7 3.4 13.9	78.6 4.0 17.4	81.1 3.6 15.3	71.2 5.1 23.7	83.4 3.0 13.6	80.1 3.6 16.4	1
	89.5 1.0 9.5	88.7 1.0 10.3	89.6 1.3 9.1	88.9 0.6 10.4	89.3 1.0 9.7	85.7 0.0 14.3	89.2 0.9 9.9	88.2 0.7 11.0	
								2	

Table III-2

[MUNICATIONS STATISTICS BY AVIATION CATEGORY

MPOSITION OF COMPOSITION OF COMPOSITION OF							200	COMPOSITION OF		
ER OF CONTACTS	DATA MESSAGES (%)			INFORMATION MESSAGES (%)				POSITION ( MESSAGES		
(PERCENT)	PTTOT	CONTROLLER	OVERALL		CONTROLLER		DITOT (	ONTROLLER	OWEDATE	
72222	1	AA34 2530 2530	O T CANAL AND	1101	JOH AND PROPERTY.	#14 tartefran	TIMI (	WHITE	OVERGE	
65•2	79.0	64.2	73.6	<b>65.1</b>	68.0	67.3	54-4	53•7	52.5	
12.4	9.7	14.2	i1.3	11.9	11.7	11.7	17.5	18.3	20.4	
22-4	11.3	21.7	15.1	23.0	20.4	21.0	28.0	28.0	27.1	
68-2	67.9	70.8	69.1	71.2	67.0	67.9	66.4	62.7	64.3	
10 - 4	7.6	7.2	7-4	8.7	10.3	9•9	7.2	10.7	9.2	
21-4	24.5	22.0	23.5	20.1	22.7	22.2	26.4	26.6	26.5	
89-9	93.8	85.4	91.5	92.5	90.8	91.4	89.6	88.4	88.6	
7 •0	5.7	13.5	7.8	7.5	8.9	8.4	10.3	10.8	10.7	
3.2	0.5	1.1	0.7	*****	0.3	0.2		0.8	0.7	
97 •2	96.6	98.8	97.0	96.1	97.2	96.7	100.0	96.1	96.5	
1.9	1.4	1.2	1.3	2.9	1.6	2.3	<b></b>	2.8	2.5	
0.9	2.0		1.7	1.0	1.2	1.0		1.1	1.0	
61.2	65.3	62.6	63.7	57.4	60.6	59.7	53.8	50.2	51.2	
10.1	7.4	3.7	5.3	6.0	7.3	6.9	9.9	8.4	8.8	
28.6	27.3	33.7	31.0	36.6	32.1	33.4	36.3	41.4	40.0	
65.5	79.1	53.2	71.8	64.5	59.8	60.9	41.3	46.0	43.3	
6.2	6.3	3.2	5.5	12.6	7•3	8.5	12.7	11.5	12.2	
28.3	14.5	43.6	22.7	22.9	32.9	30.6	46.0	142.5	44.5	
75.9	82.7	78.6	81.1	71.2	83.4	80.1	69.9	65.9	67.1	
4.6	3.4	4.0	3.6	5.1	3.0	3.6	4.4	8.1	7.0	
19.5	13.9	17.4	15.3	23.7	13.6	16.4	25.7	26.0	25.9	
88.7	89.6	88.9	89.3	85.7	89.2	88.2	84.8	89.9	88.1	
1.0	1.3	0.6	1.0	0.0	0.9	0.7	0.0	0.0	0.0	
10.3	9.1	10.4	9•7	14.3	9•9	11.0	15.2	10 <b>.1</b>	11.9	
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# COMPARATIVE CENTER COMMUNIC

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POSITION	AVIATION	COMPOSITION OF NUMBER	COMPOSITION OF	COMPOSITION OF (
AND SAMPLE SIZE	CATEGORY	OF PLANES CONTACTED (PERCENT)	COMMUNICATIONS TIME (PERCENT)	NUMBER OF (PERCEI
	\ <del>-</del>	/ a and and	/ T. T. T. T. T. T. T. T. T. T. T. T. T.	7. EU. EI
D2 RADIC	Air Carrier	81.7	81.7	86.3
	Military	14.7	13.8	10.3
	Gen. Aviation	3.6	4.5	3.4
		-	(	
	Air Carrier	82.8	66.8	83.3
(22 Hours 1959)		17.2	33.2	1.6.7
	Gen. Aviation	<b>**</b>		
	Air Carrier	94.3	89.1	90.1
(10 Hours 1959)	Military	5.7	10.9	9.9
	Gen. Aviation	••	₹5 day	
1B RADAR	Air Carrier	96.3	97.2	97.2
(10 Hours 1959)		3.7	2.8	2.8
	Gen. Aviation	J• I		2.0
	Air Carrier	68.2	75.1	69.6
(10 Hours 1959)		31.8	24.8	30.4
	Gen. Aviation			
	Air Carrier	80 • 4	80.4	83.9
	Military	13.0	13.3	12.7
	Gen. Aviation		6.3	3.4
D2 RADIO	Air Carrier	80.8	86.3	90.5
	Military	15.1	11.6	8.3
	Gen. Aviation		2.1	1.2
D2 DADTO	Adm Comme	QI. I.	Ze 1.	
D3 RADIO (3 Hours 1960)	Air Carrier Military	84• <b>f</b>	65.4 8.7	77.1
	Gen. Aviation		25.9	12.8
1	]	1		}
	Air Carrier	92.8	92.8	93.8
(2 Hours 1960)	Military	6.3	5.5	4.4
1	Gen. Aviation	0.9	1.7	1.8
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Table III-3

COMPARATIVE CENTER COMMUNICATIONS STATISTICS BY AVIATION CATEGORY

R	COMPOSITION OF COMMUNICATIONS TIME	DATA	MPOSITION MESSAGES	(%)	INFORMA	NPOSITION TION MESS	GES (%)	
	(PERCENT)	NUMBER OF CONTACTS (PERCENT)	PILOT C	ONTROLLER	OVERALL	PILOT C	ONTROLLER	OVERALL
	81.7 13.8 4.5	86.3 10.3 3.4	85.4 9.3 5.3	85.4 6.0 8.5	85.4 8.1 6.5	86.6 9.9 3.5	88.8 8.0 3.1	87.8 8.9 3.3
	66.8	83.3 16.7	86.9 13.1	89.4 10.6	87.7 12.3	85.4 14.6	91.4 8.6	88.7
	89.1 10.9	90.1 9.9	90.7	89.8 10.2	90.2 9.8	87.4 12.6	90.0	88.5 11.5
	97 <b>.2</b> 2.8	97 <b>.2</b> 2.8	98.3	97.1 2.9	97.8 2.2	98.1	98.0 2.0	98.0 2.0
	75.1 24.8	69.6 30.4	78.6 21.4	77.6 22.3	78.1 21.9	66.2 33.8	81.4 18.6	73•3 26•7
	80.4 13.3 6.3	83.9 12.7 3.4	84.5 10.1 5.4	88.5 7.1 4.4	86.2 8.8 <b>5.0</b>	82.4 12.2 5.3	85.3 4.0 10.7	83.5 9.2 7.3
	86.3 11.6 2.1	90.5 8.3 1.2	91.3 7.2 1.4	95.7 4.3	92.8 6.2 1.0	93.7 5.3 1.0	88.4 8.7 2.9	91.3 6.8 1.9
	65.4 <b>8.7</b> 25.9	77.1 10.1 12.8	85.8 12.5 1.7	90.9 9.1	86.9 11.7 1.3	91.7 8.3	87.9 11.2 0.8	89.6 9.9 0.5
	92.8 5.5 1.7	93.8 4.4 1.8	80.0 9.1 10.9	86.9 9.8 3.2	82.5 9.3 8.2	82.0 14.0 4.0	79.0 11.0 10.0	81.0 22.0 7.0
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								9
N/Section 1					<del></del>			

Table III-3

R COMMUNICATIONS STATISTICS BY AVIATION CATEGORY

MERC P CONTACTS   DATA MISSAGES (\$)   STATE MISSAGES (\$)   FILTO CONTROLLER CYCRALL   FILTO CONTROLLER CYCRAL   FILTO CONTROLLE	COMPOSITION OF	COMPOSITION OF			T C	OMPOSITION	OF	COL	APOSITION	OF
86.3					INFORM	ATION MESS	AGES (%)			
10.3	(PERCENT)	PILOT	CONTROLLER	OVERALL.	PILOT	CONTROLLER	CVERALL	PLIOT C	DNTROLLER	OVERALL
10.3	86. 3	RC I.	9 <b>ć</b> ).	u <u>r</u> ),	86.6	88.8	H7 R	82 5	8E 8	86.4
3.h 5.3 8.5 6.5 3.5 3.1 3.3 h.0 3.0 3.2 83.3 83.3 86.9 89.h 87.7 85.h 91.h 88.7 11.6 11.7 11.6 8.6 11.3 11.6 19.7 11.2 11.6 19.7 11.2 11.6 19.7 11.2 11.6 19.7 11.2 11.6 19.7 11.2 11.6 19.7 11.2 11.6 19.7 11.2 11.6 19.7 11.2 11.6 19.7 11.2 11.6 19.7 11.2 11.6 19.7 11.2 11.6 19.7 11.2 11.6 19.7 11.2 11.6 19.7 11.2 11.6 19.7 11.2 11.6 19.7 11.2 11.6 19.7 11.2 11.6 19.7 11.2 11.6 19.7 11.2 11.5 11.5 11.5 11.5 11.5 11.5 11.5									11.9	
83.3   86.9   89.4   87.7   11.6   8.6   11.3   114.6   19.7   18.2    90.1   90.7   89.8   90.2   87.4   90.0   88.5   97.3   91.8   95.5    9.9   9.3   10.2   9.8   12.6   10.0   11.5   2.7   5.2   14.5    90.2   98.3   97.1   97.8   98.1   98.0   98.0   98.2   98.2    2.8   1.7   2.9   2.2   1.9   2.0   2.0   1.8   1.8   1.8    69.6   78.6   77.6   78.1   66.2   81.4   73.3   75.0   69.0   70.6    30.4   21.4   22.3   21.9   33.8   18.6   26.7   25.0   31.0   29.4		5.3			3.5					
16.7  13.1  10.6  12.3  11.6  8.6  11.3  11.6  19.7  18.2  90.1  90.7  89.8  90.2  9.8  12.6  10.0  11.5  2.7  5.2  4.5  97.2  98.3  97.1  97.8  98.1  98.0  98.0  98.0  98.2  98.2  1.7  2.9  2.2  1.9  2.0  2.0  1.8  1.8  1.8  69.6  78.6  77.6  78.1  66.2  81.1  73.3  75.0  69.0  70.6  30.1  21.1  22.3  21.9  33.8  18.6  26.7  25.0  31.0  29.1  83.9  84.5  88.5  86.2  82.4  85.3  83.5  82.3  81.0  81.3  12.7  10.1  7.1  8.8  5.4  4.4  5.0  5.3  10.7  7.3  12.9  4.8  11.1  11.8  8.3  7.2  4.8  8.3  7.2  4.8  6.2  5.3  8.1  6.9  93.7  88.1  91.3  77.9  89.4  86.4  10.2  1.4   1.0  1.0  2.9  77.1  85.8  90.9  86.9  91.7  87.9  89.6  91.9  90.1  90.8  10.1  12.5  9.1  11.7  1.0  2.0  71.1  85.8  90.9  86.9  91.7  87.9  89.6  91.9  90.1  90.8  10.1  12.5  9.1  11.7   1.3   0.8  71.4  77.9  76.8  83.9  11.0  77.1  18.2  10.9  77.1  18.2  10.9  77.1  18.5  10.9  77.1  18.5  80.0  80.0  80.0  80.0  80.0  80.0  80.0  80.0  80.0  80.0  80.0  80.0  90.7  80.0  90.7  80.0  71.4  77.9  70.8  80.0  80.0  71.4  77.9  70.8  80.8  93.8  80.0  80.	<b>J</b> •4	1	0.00	0.7	1	J+2.	J•J	4,50	<b>J</b> **	7.2
90.1 90.7 89.8 90.2 87.4 90.0 88.5 97.3 94.8 95.5 9.9 9.3 10.2 9.8 12.6 10.0 11.5 2.7 5.2 4.5 4.5 12.6 10.0 11.5 2.7 5.2 4.5 4.5 1.7 2.9 2.2 1.9 2.0 2.0 1.8 1.8 1.8 1.8 1.8 1.8 1.8 1.8 1.8 1.8										
90.1 90.7 89.8 90.2 87.4 90.0 88.5 97.3 94.8 95.5 97.9 9.3 10.2 9.8 12.6 10.0 11.5 2.7 5.2 4.5 1.7 2.9 2.2 1.9 2.0 2.0 1.8 1.8 1.8 1.8 1.8 1.8 1.8 1.8 1.8 1.8								14.6	19.7	18.2
9.9 9.3 10.2 9.8 12.6 10.0 11.5 2.7 5.2 4.5 97.2 98.2 98.2 98.2 2.8 1.7 2.9 2.2 1.9 2.0 2.0 1.8 1.8 1.8 1.8 1.8 1.8 1.8 1.8 1.8 1.8										
9.9 9.3 10.2 9.8 12.6 10.0 11.5 2.7 5.2 4.5 97.2 98.2 98.2 98.2 2.8 1.7 2.9 2.2 1.9 2.0 2.0 1.8 1.8 1.8 1.8 1.8 1.8 1.8 1.8 1.8 1.8	90.1	90.7	89.8	90.2	87.4	90.0	88.5	97.3	9h•8	95.5
97.2									5.2	
2.8		•						1		3
2.8	97.9	OH 2	07 1	0 <b>7</b> 8	08.1	08 n	OÑ A	08.2	08.0	09.2
69.6 30.4 21.4 22.3 21.9 33.8 18.6 26.7 25.0 31.0 29.4										
30.4								I		L L
30.4		-0.6	/		1	0- 1			4	
83.9 84.5 88.5 86.2 82.4 85.3 83.5 82.3 81.0 81.3 12.7 10.1 7.1 8.8 12.2 4.0 9.2 4.8 14.1 11.8 5.4 4.4 5.0 5.3 10.7 7.3 12.9 4.9 6.9 90.5 91.3 95.7 92.8 93.7 88.4 91.3 77.9 89.4 86.4 8.3 7.2 4.3 6.2 5.3 8.7 6.8 16.8 9.8 11.7 1.2 1.4 1.0 1.0 2.9 1.9 5.3 0.8 1.9 77.1 85.8 90.9 86.9 91.7 87.9 89.6 91.9 90.4 90.8 10.1 12.5 9.1 11.7 8.3 11.2 9.9 5.9 9.6 8.3 12.8 12.8 1.7 1.3 0.8 0.5 0.8 93.8 80.0 86.9 82.5 82.0 79.0 81.0 71.4 77.9 76.5 4.4 9.1 9.8 9.1 9.8 9.1 9.8 9.1 9.8 9.1 9.8 9.1 9.8 9.1 9.8 9.1 11.0 11.0 22.0 21.4 17.3 18.2 10.9 3.2 8.2 4.0 10.0 7.0 7.0 7.2 4.8 5.3										
83.9 12.7 10.1 7.1 8.8 12.2 10.0 7.1 8.8 11.0 81.3 11.0 81.3 11.0 9.2 1.8 11.1 11.8 3.4 5.4 1.4 1.5 5.0 5.3 10.7 7.3 12.9 1.9 1.9 6.9  90.5 91.3 95.7 92.8 93.7 88.4 91.3 77.9 89.4 86.4 86.4 87.2 1.4 1.0 1.0 2.9 1.9 5.3 0.8 11.7 1.2 77.1 85.8 90.9 86.9 91.7 87.9 89.6 91.9 90.4 90.8 10.1 12.5 9.1 11.7 1.3 0.8 0.5 93.8 80.0 86.9 82.5 82.0 79.0 81.0 71.4 77.9 76.5 1.4 9.1 9.8 9.3 11.0 11.0 22.0 21.4 17.3 18.2 1.8		1			1					
12.7       10.1       7.1       8.8       12.2       4.0       9.2       4.8       14.1       11.8         5.4       4.4       5.0       5.3       10.7       7.3       12.9       4.9       6.9         90.5       91.3       95.7       92.8       93.7       88.4       91.3       77.9       89.4       86.4         8.3       7.2       4.3       6.2       5.3       8.7       6.8       16.8       9.8       11.7         1.2       1.4        1.0       1.0       2.9       1.9       5.3       0.8       11.7         1.2       1.4        1.0       1.0       2.9       1.9       5.3       0.8       11.7         7.1       85.6       90.9       86.9       91.7       87.9       89.6       91.9       90.4       90.8         10.1       12.5       9.1       11.7       8.3       11.2       9.9       5.9       9.6       8.3         12.8       1.7        1.3        0.8       0.5         0.8         93.8       80.0       86.9       82.5       82.0       79.0       81.0										
12.7       10.1       7.1       8.8       12.2       4.0       9.2       4.8       14.1       11.8         90.5       91.3       95.7       92.8       93.7       88.4       91.3       77.9       89.4       86.4         8.3       7.2       4.3       6.2       5.3       8.7       6.8       16.8       9.8       11.7         1.2       1.4        1.0       1.0       2.9       1.9       5.3       0.8       11.7         77.1       85.8       90.9       86.9       91.7       87.9       89.6       91.9       90.4       90.8         10.1       12.5       9.1       11.7       8.3       11.2       9.9       5.9       9.6       8.3         12.8       1.7        1.3        0.8       0.5         0.8         93.8       80.0       86.9       82.5       82.0       79.0       81.0       71.4       77.9       76.5         4.4       9.1       9.8       9.3       14.0       11.0       22.0       21.4       17.3       18.2         1.8       10.9       3.2       8.2       4.0	83.9		88.5			85.3	83.5	82.3	81.0	81.3
90.5 8.3 7.2 4.3 6.2 5.3 8.7 1.2 1.4 1.0 1.0 2.9 1.9 5.3 0.8 1.9  77.1 85.8 90.9 86.9 91.7 87.9 89.4 91.3 11.2 9.9 90.4 90.8 10.1 12.5 9.1 11.7 1.3 0.8 0.5 93.8 80.0 86.9 82.5 82.0 79.0 81.0 71.4 77.9 76.5 1.8 10.9 3.2 8.2 1.8		10.1	7.1	8.8	12.2	4.0	9.2		14.1	11.8
8.3 1.2 1.4 1.5 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6	3.4	5.4	iteit	5.0	5.3	10.7	7.3	12-9	4.9	6.9
8.3 1.2 1.4 1.5 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6	90.5	91.3	95.7	92.8	93.7	88.1	91.3	77.9	89.li	86-ի
1.2										
10.1 12.8 12.5 1.7 1.3 0.8 93.8 4.4 9.1 9.1 9.8 9.2 1.8 9.1 10.9 11.7 8.3 11.2 9.9 9.9 5.9 9.6 8.3 0.8 9.9 9.6 9.1 9.0 81.0 71.4 77.9 76.5 14.0 11.0 22.0 21.4 17.3 18.2 1.8 5.3	1.2	1.4		1.0				5.3	0.8	
10.1 12.8 12.5 1.7 1.3 0.8 93.8 4.4 9.1 9.1 9.8 9.2 1.8 9.1 10.9 11.7 8.3 11.2 9.9 9.9 5.9 9.6 8.3 0.8 9.9 9.6 9.1 9.0 81.0 71.4 77.9 76.5 14.0 11.0 22.0 21.4 17.3 18.2 1.8 5.3	77.1	85.8	ന വ	86 Q	01.7	87.0	80.6	01.0	on l	9. O
12.8       1.7        1.3        0.8       0.5         0.8         93.8       80.0       86.9       82.5       82.0       79.0       81.0       71.4       77.9       76.5         1.4       9.1       9.8       9.3       14.0       11.0       22.0       21.4       17.3       18.2         1.8       10.9       3.2       8.2       4.0       10.0       7.0       7.2       4.8       5.3										
93.8 4.4 9.1 9.8 9.2 1.8 80.0 86.9 82.5 14.0 11.0 11.0 22.0 21.4 17.3 18.2 1.0 10.9 3.2 8.2 1.0 10.0 7.0 7.2 14.8 5.3										
1.4 9.1 9.8 9.3 14.0 11.0 22.0 21.4 17.3 18.2 1.8 10.9 3.2 8.2 4.0 10.0 7.0 7.2 4.8 5.3		1			ļ					
1.8 10.9 3.2 8.2 4.0 10.0 7.0 7.2 4.8 5.3									77.9	
	ii-ii			9.3						
3	7.0	10.9	3.2	8.2	4.0	10.0	7.0	7.2	4.8	5.3
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### COMPARATIVE STATION COM

POSITION AND SAMPLE SIZE	AVIATION CATEGORY	COMPOSITION OF NUMBER OF PLANES CONTACTED (PERCENT)	COMPOSITION OF COMMUNICATIONS TIME (PERCENT)	COMPOSITION NUMBER OF COMPOSITION NUMBER OF
D POSITION (20 Hours 1959)	Air Carrier Military Gen Aviation	26.6 62.4 11.0	27•5 6 <b>7•</b> 0 5•5	26.5 68.7 4.8
C POSITION (18 Hours 1959)	Air Carrier Military Gen Aviation	25•3 38•7 36•0	12.6 60.8 26.6	22.1 48.9 29.0
B POSITION (24 Hours 1959)	Air Carrier Military Gen Aviation	2.5 4.0 93.5	0.6 3.7 95.7	1.9 4.7 93.4



Table III-4

COMPARATIVE STATION COMMUNICATIONS STATISTICS BY AVIATION CATEGORY

COMPOSITION OF	COMPOSITION OF	C	LASSIFICATION	OF	1	COMPOSITION	OF	
COMMUNICATIONS TIME					INFOR			
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27.5	20.5				31.5			, 1
67.0			69.4	70 <b>.7</b>	61.5	77• <b>7</b>	68.1	! (
5 <b>•</b> 5	4.8	6.3	3.5				5.9	
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12.6	22.1	35.7	20.0	25.6	2), 1	27.6	25.3	
		1.2 8			10.4			1 1
							39.0	1
20.0	29.0	27.2	28.0	25.0	33.3	37+9	34.9	
- 1		Ì			l			1
	1.9							1 1
3.7	4.7		-		1ءيا	2.1	3.1	1 1
95.7		100.0	100-0	100-0				1 1
	/504		20010	700.00	1000	71.7	,00,	1 1
		f			[			1 [
					ł			1
		1			l			1 1
•		ļ			]			1 1
		]			ŀ			
	COMPOSITION OF COMMUNICATIONS TIME (PERCENT) 27.5 67.0 5.5 12.6 60.8 26.6 0.6 3.7 95.7	COMMUNICATIONS TIME (PERCENT)  27.5 67.0 5.5 12.6 60.8 22.1 60.8 26.6 29.0 0.6 3.7 1.9	COMMUNICATIONS TIME (PERCENT) NUMBER OF CONTACTS DA PILOT  27.5 (PERCENT) 26.5 20.8 67.0 68.7 72.9 6.3 6.3 6.3 12.6 22.1 35.7 60.8 18.9 12.8 26.6 29.0 21.5 0.6 3.7 1.9	COMMUNICATIONS TIME (PERCENT) NUMBER OF CONTACTS DATA MESSAGES (% FILOT COMMUNICATOR)  27.5 (PERCENT) 26.5 20.8 27.1 67.0 68.7 72.9 69.4 6.3 3.5  12.6 22.1 35.7 20.0 60.8 48.9 42.8 52.0 26.6 29.0 21.5 28.0  0.6 1.9	COMMUNICATIONS TIME (PERCENT)   DATA MESSAGES (%)   PILOT   COMMUNICATOR OVERALL    27.5   26.5   20.8   27.1   21.8   67.0   68.7   72.9   69.1   70.7   5.5   14.8   6.3   3.5   14.5    12.6   22.1   35.7   20.0   25.6   60.8   148.9   142.8   52.0   148.7   26.6   29.0   21.5   28.0   25.6    0.6   1.9     3.7   14.7	COMMUNICATIONS TIME (PERCENT)   DATA MESSAGES (%)   INFOR (PERCENT)   PILOT   COMMUNICATOR OVERALL   PILOT    27.5   26.5   20.8   27.1   24.8   31.5   67.0   68.7   72.9   69.4   70.7   61.5   5.5   4.8   6.3   3.5   4.5   7.0    12.6   22.1   35.7   20.0   25.6   24.1   60.8   48.9   42.8   52.0   48.7   42.6   26.6   29.0   21.5   28.0   25.6   33.3    0.6   1.9	COMMUNICATIONS TIME (PERCENT)   DATA MESSAGES (%)   INFORMATION MESSAGE (PERCENT)   DATA MESSAGES (%)   INFORMATION MESSAGE (PERCENT)   DATA MESSAGES (%)   INFORMATION MESSAGE (%)   INFORMATION MESSAGE (%)   DATA MESSAGES (%)   INFORMATION MESSAGE (%)   INFORMATION MESSAGE (%)   DATA MESSAGES (%)   INFORMATION MESSAGE (%)   DATA MESSAGES (%)   INFORMATION MESSAGE (%)   DATA MESSAGES (%)   INFORMATION MESSAGE (%)   DATA MESSAGES (%)   INFORMATION MESSAGE (%)   DATA MESSAGES (%)   INFORMATION MESSAGE (%)   DATA MESSAGES (%	COMMUNICATIONS TIME (PERCENT)    Number of contacts (PERCENT)   Data Messages (%)   Information Messages (%)

Table III-h
'ATION COMMUNICATIONS STATISTICS BY AVIATION CATEGORY

COMPOSITION OF	DA'	CLASSIFICATION OF			COMPOSITION OF			COMPOSITION OF		
IMBER OF CONTACTS		DATA MESSAGES (%)			INFORMATION MESSAGES (%)			NEWS MESSAGES (%)		
(PERCENT)	PILOT	COMMUNICATOR	OVERALL	PILOT C	OMMUNICATOR	OVERALL	PILOT	COMMUNICATOR	OVERALL	
26.5	20.8	27.1	24.8	31.5	18.0	26.0	28.9	33.4	31.7	
68.7	72.9	69.4	70.7	61.5	77.7	68.1	65.2	61.4	64.2	
4.8	6.3	3.5	4.5	7.0	4.3	5.9	5.9	5.2	4.1	
22.1	35.7	20.0	25.6	24.1	27.6	25.3	20.4	20.0	20.2	
48.9	42.8	52.0	48.7	42.6	34.5	39.8	39.8	43.0	41.1	
29.0	21.5	28.0	25.6	33.3	37.9	34.9	39.8	37.0	38.7	
1.9 4.7 93.4	100.0	100.0	100.0	4.1 95.9	2.1 97.9	3.1 96.9	2.0 1.0 97.0	4.5 95.5	1.1 2.6 96.3	



### 2. Pilot/Controller Contact Initiation Percentages

Table III-5 shows the percentage of contacts which were initiated by the pilot or controller. The percentages are based upon a representative sample of contacts for each control position.

Table III-5
PILOT/CONTROLLER CONTACT INITIATION PERCENTAGES

The same of the sa	NUMBER OF		1	OF CONTACTS:
7	Initiated by	Initiated by	Initiated by	
POSITION	Pilot	Controller	Pilot	Controller
TOWER				
Ground Control	195	154	56	կե
Local Control	197	206	49	51
Approach Control	233	176	57	43
Approach Control (Radar)	170	245	41	59
Departure Control (ANC)	347	60	85	15
Departure Control (Radar)	145	164	47	53
CENTER				
D2 Radio Control	240	163	60	40
D3 Radio Control	177	116	60	40
Rader 1A Control	62	80	դդ	56
Radar 1B Control	194	214	48	52
Radar 2A Control	80	90	47	53
Radar 2B Control	105	91	54	46

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### SECTION IV

### COORDINATION COMMUNICATIONS

The data obtained from the interphone positions did not, in general, permit the same discriptive and analytical techniques used for the air-to-ground type position data. For that reason all interphone data are presented separately in this Section. Since ground-to-ground R/T is essentially a type of interphone, the generic term "coordination communications" is used. No DIN statistics are presented because the technique was found to be imaginopriate. An attempt was made to apply the classification system, but the conversational nature of the interphone contacts yields a fluid language structure which gives essentially meaningless DIN statistics.

The time-related measures, with appropriate modifications, were calculated for the interphone and ground-to-ground R/T positions. Time per interphone (or ground-to-ground R/T) contact has the same meaning for coordination communications as for ground-air communications, but one interphone contact might include conversation about two or more aircraft. Communications time per plane had a different meaning because the conversations were being conducted about planes and not with planes. The measure is therefore called average total time per plane treated instead of total time per plane contacted to differentiate it from the air-to-ground communications time. When more than one plane was discussed, the correct portion of total contact time was assigned to each plane in order to obtain the total time per plane.

*^* 

### A. COORDINATION COMMUNICATIONS TABLES

The modified time-related measures are presented in Tables IV-1 to IV-14. Ground-to-ground R/T communications are included with the interphone data in these tables whenever both occur at a position.

Table IV-1

TIMING STATISTICS - TOWER POSITION TOTALS

	SPENT ON	8	% COMPOSITION OF	ATTON	ON OF	Ĥ	AVERAGE NUMBER OF PLANES TREATED WITHIN	MOM	SER O	UMBER OF PLANE TREATED WITHIN	MES	AV.T TR	AV.TOP.TIME PER PLANE TREATED WITHIN	TREATED VITHIN	PLANE.
	INTERPLIONE		WITHIN INTERVAL	INTE	RVAL	CONTACTS	CONTACT		TAT	INTERVAL		H	ERVAL	INTERVAL (SECONDS)	DS)
POSITION AND	COMM PER			5	GEN'L ATC	PER	TIME	Ş	Ę	4	Tenen	V 74	Ę	ξ.	OVER-
محتدة مدعسة	INTERVAL	AC	MIL	5	LINEO	INTERVAL	(SECONIES)	3	1	5	AC MILL GR TOTAL		1	5	3
TOWER IFR FOS. (1th Hours-1959)	20	78.2	11.0	11.0 2.3 8.5	8.5	75.	22.1 46.9 3.3 0.9 5.1 19.8 46.7 38.1 25.2	1,6.9	3.3	6.0	ų	19.8	1.94	38.1	25.2
TOWER FLICHT DATA POS. (12 Hours-1959)	13	71.0	13.0	13.0 6.9 7.1	7.1	14	33.7 25.7 3.0 2.7 31.3 34.6 52.4 48.5 36.8	25.7	3.0	2.7	31.3	34.6	52.4	48.5	36.8

Table IV-2

TIMING STATISTICS - CENTER POSITION TOTALS

CONTACT:	3 4	% TIME SPENT ON	000	COMMUNICATION OF	OSITIC	N OF	ä	AVERAGE	NUMBER OF PLANES TREATED WITHIN	WITH	NES TA	AV.T	AV.TOT.TIME PIER FLANE TREATED WITHIN	E PER VITHIN	PLANE
COUNT FER AC MIL GA INFO INTERVAL (S 23 61.1 34.6 4.0 0.3 58  R. 18 63.7 26.2 17.8 0 32  R. 12 59.6 39.2 0 1.2 26  14 59.8 37.4 2.7 0 38		TERPHONE		MELEN	E	WAL	CONTACTS	CONTACT	Z .	INTERVAL		TAT			OVER-
B. 18 61.1 34.6 4.0 0.3 58 B. 18 63.7 26.2 17.8 0 32 B. 29 8.4 1.6 0.3 0 68 B. 12 59.6 39.2 0 1.2 26 14 59.8 37.4 2.7 0 38	<u>н</u>	TERVAL	ĄÇ			INFO	INTERVAL	(SECOMDS)	AC MIL GA TOTAL	ğ	TOTAL	Ş	MIL GA	Eg.	ALL
H. 12 63.7 26.2 17.8 0 32 78.7 (8.1 1.6 0.3 0 68 46.1 1.8 12 59.6 39.2 0 1.2 26 41.8 (11.8 14 59.8 37.4 2.7 0 38 71.0	<del> </del>	ಣ	1	34.6	0.4	0.3	58	8.40	17.5 6.7	J.0	25.2	56.4	83.7	63.1	63.2
29 8.4 1.6 0.3 0 68 46.1 3 R. 12 59.6 39.2 0 1.2 26 41.8 1 14 59.8 37.4 2.7 0 38 71.0	AZ ASST. CONTIR. (3 Hours-1959)	18	63.7	26.2	17.8	0	ಜ್ಞ		11.8 4.3 0.8 16.8 70.2 80.3 173.4 77.4	0.8	16.8	70.2	80.3	173.4	4.77
38 71.0 38 71.0 38 71.0	D3 CONTROLLER (12 Ecurs-1959)	53	4.8	7.6	0.3	0	83		38.8 4.0 0.3 43.2 43.4 67.3 20.4 45.4	0.3	43.2	43.4	67.3	4.02	<b>4-54</b>
14 59.8 37.4 2.7 0 38 71.0	A3 ASST. CONTLR. (10 Hours-1959)	टा	59.6	39.5		Q.	56		16.8 3.8 0	0	20.6	20.6 29.9 108.2	108.2	ŀ	41.3
	D7 CCNTROLLER (8 Hcurs-1959)	<del></del>	59.8	37.4	2.7	0	ဆွ	71.0	9.5 4.2 0.8 14.5 63.2 87.3 35.8 68.8	0.8	14.5	63.2	87.3	35.8	68.8

	GRND TO GRND TO INTERPHONE TOTAL GRND R/T PHONE ALL	11.0 81.0 32.0 61.0
IS	E TOTAL	11.0
NUMBER OF CONTACTS PER INTERVAL	INTERPHON	4.5
NUMBER	GRWD TO GRWD R/T	6.5
COLEMNICATIONS TIME	GRND TO GRND R/T INTERPHONE	21.8
COSESSINIC	GRND TO GRND R/T	78.2
% TIME SPENT	COMMUNICATIONS PER INTERVAL	10
	DATE AND TIME	FLICHT DATA 4 (8 Hours)

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Table IV-3

TIMING STATISTICS - STATION FOSTITION TOTALS

ONE NUMBER OF CONTACTS  CENID TO  CRUD R/T INTERPHONE TOTAL CRU  8.4 23.4 31.8 16  0.9 17.4 18.3 19	<u> </u>		S COMPOSITION OF	TION OF				AVERAC	AVERAGE CONTACT TIME	T TIME
NED         COMMUNICATIONS         GRND TO         CERND TO         CERND TO         GRND TO           28         15         81.1         8.4         23.4         31.8         16.6           8         3.4         96.6         0.9         17.4         18.3         19.2		% TIME SPENT ON COORDINATION	COMMUNICA WITHIN I	PIONS TIME	NUMBER PER	OF CONTACTS INTERVAL	_	IHTIM SS)	N INTERVICENT	AL
10 18.9 81.1 8.4 23.4 31.8 16.6 24.3 8 3.4 96.6 0.9 17.4 18.3 19.2 31.2	POSITION AND SAMPLE SIZE	CCAMUNICATIONS PER INPERVAL	GRWD TO GRWD R/T	1 • 1	CRND TO GROD R/T	INTERPHONE	TOTAL	CRND TO	INTER- PHONE	OVER- ALL
8 3.4 96.6 0.9 17.4 18.3 19.2 31.2	D POSITION (20 Hours)	10	18.9	81.1	4.8	23.14	31.8	9.91	24.3	22.1
	c Position (18 Hours)	ω	ų, ų,	9.%	6.0	17.4	18.3	19.2	31.2	22.1

AVERAGE INTERPHONE CONTACT TIME (SECONDS)	8.9
NUMBER OF INTERPHOVE CONTACTS PER INTERVAL	7.7
7 TIME SPEHT ON COORDINACION COMMUNICATIONS ON INTERPHONE	ં લ
AVERAGE BROADCAST TIME WITHIN INTERVAL (SECONDS)	178.8
NUMBER OF BROADCASTS PER INTERVAL	ŧ.
9, TIME SPENT ON WEATHER AND NOTAM BROADCASTS	47.
DATE AND TIME	B POSITION (24 Eours)

Table IV-4

TIMING STATISTICS - TOWER IFR COORDINATOR POSITION

(Two-Hour Intervals)

										<del></del>	J.
PLAINE	OVER-	ALL	25.7	20.8	26.9	27.7	28.1	19.3	27.6		2
AV.TOL.TIME PER FLANE TREATED VITHIN TNTERVAL (SECONDS)		AP P	37.0 43.6	12.8	i	59.9 125.5	16.8	•	i		
V. TOT. TIM TREATED 1 TRIENVAL		MIL	37.0	9.टा	ъ.	59.9	33.1	29.8	53.6		
AV.TA		AC	23.5	4.12	27.6	23.7	27.6	18.6	26.6		
NES N		GA TOTAL	94	56	55	#	99	84	덦		
R OF PLA TED WITH TWEEVAL		GA	H	a	1	<del>ا</del>	ભ	1	1		
NUMBER OF PLANES TREATED WITHIN TAMERYAL.		MIL	٧	Ø	4	н	5	m	ณ		
MON BET		Q.	39	δζ	12	25	59	54	5		_
AVERAGE IP	TIME	(SECONDS)	16.9	22.5	21.8	19.5	30.0	24.9	7.71		
CONTACTS	INTERVAL		78	ಜ	69	51	بح	58	78		
ON OF S TIME	WITHIN INTERVAL	OHNI	10	φ	ณ	\$	<b>L</b> -	83	7		
% COMPOSITION OF CONTUNICATIONS TIME	E LINIE	CA	m	0	1	13	a	i	ŧ		
Section Co	MILIA	MIL	17	CV.	25	9	01	ω	2		
ď		¥	70	88	73	92	8	70	8		
% TIME SPENT ON	INTERPHONE	INTERVAL	19	13	เร	<b>†</b> 1	59	18	ຊ		
		CAMPIE STOR	15 Nay 1959 (0500-1000)	20 May 1959 (1500-1800)	22 May 1959 (1600-1800)	23 May 1959 (0000-0200)	23 May 1959 (1400-1600)	23 May 1959 (1600-1800)	24 MBY 1959 (1400-1600)		

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Table IV-5

TIMING STATISTICS - TOWER PLIGHT DATA POSITION

SPERT ON	COMMUNICATIONS TIME		Ĥ		MONTH.	NUMBER OF PLANES TREATED WITHIN	PLA	S =	AV.TC TRE	OF TED	TREATED VITTIN	AV. TOT. TIME PER PLANE TREATED WITHIN
3	텔	AFFC	PER	TOUL	•					TIVATE I		OVER-
AC MILL GR	7	2007	INTERNAL	(SECONDS)	3	į	5	TOTAL	3	T T	5	1
149 23 20		∞	8	51.9	28	ον ·	_	4	29.6 41.9 48.0	41.9	₩8.0	35.0
83 4 7		7	64	35.2	83	H	Q	33	50.8 68.4 58.0	<b>4.8</b> 9	58.0	51.9
75 3 7	~	15	24	27.0	ਲ ਦ	d	<b>4</b>	8	27.6 32.1 19.6	% %	19.6	26.8
- 06		<u> </u>	17	28.2	17	ı	ત	81	25.5	1	.6.8	25.9
9 56 6	4.0	<u>.</u> خ	14	14 <b>6.</b> 8	<del>ನೆ</del>	C)	ਜ	21	36.0 1.60.9 74.5	. 6.09	74.5	9*9#
78 12 2		<b>6</b>	35	36.9	98	ĸ	H	22	35.4 28.6 21.9	28.6	21.9	33.9
			<u> </u>			٠		•				

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Table IV-6

TIMING STATISTICS - CENTER D2 CONTROLLER POSITION

(Two-Hour Intervals)

PLANE DS)	OVER- ALL	88.0	69.1	4. 10	49.5	56.4	6.84		
AV.TOT.TIME PER PLANE TREATED WITHIN TINTERVAL (SECONDS)	&	72.1	93.4	39.2	43.9 95.6 29.8		!	•	
ST. TIM SATED SRVAL	MIL	92.4 87.3 72.1	30.9 165.2	76.5 40.5 39.2	95.6	70 <b>.</b> 4	75.8		
AV.TC TRE	AC	4.26	30.9	76.5	43.9	51.5	43.9 75.8		
NES IN	GA TOTAL	12	S	33	16	ถ	R <sub>K</sub>	 	
NUMBER OF PLANES TREATED WITHIN INTERVAL	GA GA	ო	ч	н	н	ł	:		*****
BER O	MEL	Ħ	9	9	Ø	9	5		
NUM	₽ ¥	13	£	8	13	17	27		
AVERAGE IP CONTACT	TIME (SECONDS)	0.88	76.0	7.49	49.5	\$6.4	48.9		
IP	PER INTERVAL	7/8	37	83	38	22	70		1
COMPOSITION OF COMPUTATION OF VIPELIN INTERVAL	GEN'L ATC INFO	1	N	ļ	i i	į.	ł		<u> </u>
S COMPOSITION OF MAUNICATIONS TIM	GA	6	•	Q	<b>-</b> #	ł	i		
ONMUNI	MIL	04	65	19	† <del>č</del>	æ	23		
0	AC	50	56	62	72	29	11		
SPENT ON	COMM PER INTERVAL	34	82	8	7	18	8		
	POSITION AND SAMPLE SIZE	1.5 Nay 1959 (0300-1000)	20 May 1959 (1400-1600)	22 May 1959 (1600-1800)	23 May 1959 (0000-0200)	23 May 1959 (1400-1600)	23 May 1959 (1600-1800)		

Table IV-7

MING STATISTICS - CENTER A2 ASSISTANT CONTROLLER POSITION

	SPENT ON	ō	S CONTRACTION I	% COMPOSITION OF OPENING TIME	% COMPOSITION OF OP-	IP	AVERAGE IP CONTACT	NUMBER OF PLANES TREATED WITHIN INTERVAL	NUMBER OF PLANE TREATED WITHIN INTERVAL	R OF PLAN TED WITH INTERVAL		AV.:S	INTERVAL (SECONDS)	WITHER SECO	AV. TURATED WITHIN INTERVAL (SECONDS)
POSITION AND	COMM PER	Ş	MTT. GA	31	GEN'L ATC	PER	(SECONDS) AC MIL GA TOTAL	ĄÇ	MIL	1 5	TOTAL	AC	MIL	G.	OVER- ALL
15 May 1959 (0800-1000)	25	7.7	R	ដ	1	37	88.8	#		a	8	75.8 82.3 183.8 88.8	82.3	183.	3.88.8
20 May 1959 (1400-1600)	23	63	37	:	:	₹	102.5 10 6	97	9	•	97	16 104.1 99.8	8. 8.		- 102.5
22 May 1959 (1600-1800)	72	33	11	41	i i	36	51.8 16	16	<b>4</b>	н	ส	46.5 47.6 152.7 51.8	9.14	158.	7 51.8
23 May 1959 (0000-0200)	or T	8	ŀ	!	ł	72	68.2	91	1	i	9	88.2	;	1	68.2
	·														
										•					
													***************************************		

Table IV-S

POSITION STATISTICS - CENTER D3 CONTROLLER POSITION

(Two-Hour Intervals)

NA									T V	M 339-84 colume II une 1960 age 415
PLANE DS )	OVER- ALL	57.9	43·3	41.9	52.7	43.3	37.3		P	age 415
PER VITTIN (SECON	GA	12.1	1 .	1	ı	ı	28.6			
AV.TOT.TIME PER PLANE TREATED WITHIN INTERVAL (SECONDS)	MIL	78.9	50.6	55.6	80.0	63.6	55.4			
AV.TR	QC Y	54.1	43.1	40.9	4.64	1 <sup>4</sup> 2.6	35.3			
NES IN	TOTAL	35	14	<b>1</b>	94	8	21			
R OF PLA TED WITH	₽5	н	1	1	1	ı	ri			
UMBER OF PLANE TREATED WITHIN TAMERVAL	MIT	-	a	m	'n	п	9			
TRE	Ş	27	54	T#	T#	62	20			
AVERAGE . NUMBER OF PLANES  IP TREATED WITHIN  TOWNSON	TIME (SECONDS)	57.9	43.3	41.9	52.7	43.3	37.3			
IP Supplier	PER INTERVAL	0.2	24	73	62	Ž,	98			
COMPOSITION OF COMMUNICATIONS TIME	MIL GA INFO	ı	ı	ı	1 .	t	ı			
POSITI	# 8 4	0.7	1	ı	ı	1	ط			I
לכט אל כנאטוניין סי	THE PERSON NAMED IN COLUMN 1	27	. <del></del>	0	97	2	91			
	¥C	72	%		ಹ	85	83			
SPENT ON	COMM PER	59	35	28	35	38	œ			
	POSITION AND   SAMPLE SIZE	15 May 1959 (0000-1000)	20 May 1,359 (1400-1600)	20 May 1959 (1600-1800)	22 May 1959 (1600-1600)	23 %sy 1959 (0000-0200)	23 Nay 1959 (1400-1600)	· .		

Table IV-9

TIMING STATISTICS - CENTER A3 ASSISTANT CONTROLLER POSITION

(Two-Hour Intervals)

PLANE N NDS)	OVER-	2k AS		52.4	58.6	J.04	25.6		
PER VITHI (SECO	₹.			i	i 1	;	;		
AV.TCT.TIME PER PLANE TREATED WITHIN INTERVAL (SECONDS)	MIL	ט מש א או	76.3	29.6 157.2	53.2 113.0	30.7 104.5	24.0 82.1		
AV.T TR	PG PG	7 8 6	2	29.6	53.2	30.7	्. र	· · · · · · · · · · · · · · · · · · ·	
NES	TOTAL	ç	Ž	28	1	8	33		
NUMBER OF PLANES TREATED WITHIN TWIERVAL	A S		<b>!</b>	i	1	1	ŀ	,	
ATED	MIT		у.	2	н	m	н		1
NUMB	Ş	1	3	23	01	19	83		
AVERAGE	TIME	7	\$. \$.	52.4	58.6	L.04	56.6		
TP	PER	TO A STATE OF THE PARTY OF THE	<del></del>	35	15	33	25	<del></del>	
% COMPOSITION OF COMPONICATIONS TIME	WITHIN INTERVAL GEN'L AFF	Cana	i	i	ŀ	;	ω		
POSITI		5	i	;	!	i i	1		i
S COM	MILE.	776	9.	₹	18	33	य		
ō	:	2	04	94	82	65	79		
% TIME SPENT ON	COM PER	INTERVAL	σı	ช	07	디	6		
	POSITION AND	SAMPLE SIZE	15 May 1959 (0800-1000)	20 May 1959 (1400-1600)	20 May 1959 (1600-1600)	22 May 1959 (1600-1800)	23 May 1959 (1400-1600)		

Table IV-10

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TIMING STATISTICS - CENTER D7 CONTROLLER POSITION

('Pwo-Hour Intervals)

			<del></del>	<u> </u>		· · · · · · · · · · · · · · · · · · ·		
PLANE	ກຮ)	OVER-	Airis	4.52	₽. ₩.	4.62	1,3.3	
E PEK	TREATED WITHLN INTERVAL (SECONDS)	5	5	14.6	1	74.3 99.8 29.3 79.4	34.2 77.2 63.5 43.3	
AV. TOT. TIME PER PLANE	EATED ERVAL	1	MIL	33.9	90.2 100.8	99.9	77.2	
AV.T	E I	) :	) S	23.3 33.9 14.6 25.4	90.2	74.3	34.2	
NES	Ĕ		TOTAL	7	18	27	<b>α</b>	
NUMBER OF PLANES	TREADED WITHIN	;	3	н	:	rt	н	
BER O	EATED INTE		ğ	ო	2	9	H	
NO.	TH		¥	~	4	77	9	
AVEIVAGE	IP	TIME	(SECONDS) AC MIL GA TOTAL	25.4	£.4€	4.67	43.3	
	TP STPA THEON	PER	INTERVAL	56	52	26	18	
COMPOSITION OF	COMMUNICATIONS TIME	GEN'L ATC	INFO	į	1		I	
POST	CARIC	TINT	Ą	5	1	α	18	
S S	COMMUNICATION	MILLA	MIL	36	₹	36	ક્ષ	
			AC	58	88	89	59	
S TIME	SPENT ON	COMM PER	INTERVAL	. #	25	な	<b>V</b>	·
		POSITION AND	SAMPLE SIZE	(15 May 1959 (0800-1000)	20 May 1959 (1400-1600)	23 May 1959 (1400-1600)	23 May 1959 (1600-1800)	

Table IV-11

TIMING STATISFICS - CENTER FLIGHT DATA 4 POSITION

WITELIN	OVERALL	78.9	50.0	4.54	73-7		
AVERAGE CONTACT TIME WITHIN INTERVAL (SECONDS)	INTERPHONE	86.9	9.9	39.8	30.5		-
AVERAGE (	CRND TO CRND R/T	102.5	54.8	51.9	138.5		
દુ	TOTAL	76	01	13	'n		
NUMBER OF CONTACTS PER INTERVAL	GRND TO GRND R/T INTERPHONE TOTAL	ιΛ	н	Q	ო		
NUMBER	GRWD TO CRWD R/T	ជ	σ	<i>a</i> t	ત		
ITION OF IONS TIME	INTERPHONE	ដ	ч	89	25		
COMPOSITION OF COMMUNICATIONS TIME COMMUNICATIONS TIME	GRND TO GRND R/T	89	\$	38	75		
S. TIME SPENT OF COORDINATION	PER INTERVAL	1.8	L	æ	v	•	
	POSITION AND	15 May 1959 (3603-1000)	22 May 1959 (1600-1800)	23 May 1959 (1400-1600)	23 May 1959 (1600-1800)		

Table IV-12

# TIMING STATISTICS - STATION POSITION D

r Time IAL	ALL ALL	24.1	50.3	35.4	<b>†•</b> L7	23.0	æ. .π.	16.0	79.0	19.3	23.9
AVERAGE CONTACT TIME WITHIN INTERVAL (SECONDS)	TWTER- PIIONE	24.5	22.8	38.1	7.72	ლ ლ	36.8	20.7	17.4	21.3	23.3
AVERAGE WITH S)	GRIND FLO	23.6	6.81	27.5	10.2	13.5	25.9	2.11	9.9	14.0	28.2
TS	TOTAL	12	9	52	36	ଷ୍ପ	12	39	36	59	92
NUMBER OF CONTACTS PER INTERVAL	INTERPHONE TOTAL	11	33	50	†Z	12	83	90	45.	80	ଷ
NUMBER	GRIND TO GRIND R/T	10	ET.	<b>L</b> -	य	H	īV.	57	un.	σ.	m
5 COMPOSITION OF COMMUNICATIONS TIME UTTHEN INTERNAL	INTERPIONE	53	81.	8	τg	8,	%	%	8	76	98
COMPOSITION OF COMMUNICATIONS TO WITHHIM INTERVAL	CRND TO	Ĺη	19	50	61	Q	77	ਨੈ	2	₩	<b>1</b> 7
% TIME SPENT	COMMUNICATIONS DER TWERVAL	7	£1	13	6	6	13	σ.	٥	ω	O.
	POSITION AND	20 April 1959 (1400-1600)	15 May 1959 (0800-1000)	20 May 1959 (1400-1600)	20 May 1959 (1600-1800)	21 May 1959 (1600-1800)	22 May 1959 (1600-1800)	23 May 1959 (0000-0200)	23 May 1959 (1400-1600)	23 May 1959 (1600-1800)	24 May 1959 (1400-1600)

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Table IV-13

# TIMING STATISTICS - STATION POSITION C

							Vo.	lume	<u>II</u>	Page 420
TIME	OVER-	<b>ካ•</b> ቱሪ	31.3	9.19	21.0	19.6	41.5	32.1	59.9	26.3
AVERAGE CONTACT TIME WITHIN INTERVAL (SECONDS)	INTER- PHONE	24.6	31.3	9.19	29.7	19.6	45.6	32.1	<b>56.</b> 4	28.1
AVITRAGE WITHI (S	GRND TO GRND R/T	11.2	i i	1	4. 5.	1	12.7	1	55-1	16.6
<b>S</b> 2	TOTAL	09	ω	<b>!</b>	<del>7</del> 7.	10	91	82	ON	13
NUMBER OF CONTACTS PER INTERVAL		59	ω	٢	ដ	10	<del>1</del> τ	ଥ	ω	ជ
EEGVON	GRIND TO GRIND R/T	н	1		ณ	1	α .	1	н	ณ
ION OF IONS TIME	INTERPHONE	66	100	100	84	100	%	001	78	8
% COMPOSITION OF COMMUNICATIONS TIME	GRVD TO GRVD R/T INTERPH	н	í	t	œ	t	<b>4</b>	t	83	01
MOTHER SPENT	COMMUNICATIONS PER INTERVAL	50	m	-	<b>'</b>	m	σ,	ET.	ন	50
	POSITION AND	20 April 1959 (1400-1600)	15 May 1959 (0800-1000)	20 May 1959 (1400-1600)	20 May 1959 (1600-1800)	21 May 1959 (1400-1600)	21 May 1959 (1600-1800)	22 May 1959 (1600-1800)	24 May 1959 (1400-1600)	24 May 1959 (1600-1800)

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rable IV-14

TIMING STATISTICS - STATION POSITION B

AVERACE INTERPHONE CONTACT TIME (SECONDS)	15.1	7.3	† <b>.</b> 9	34.1	23.2	288.1	64.5	21.1	ر. در.	59.6	18.8	Tr.5
AV LINII CONTI (SE				···		~··				<b>41.70.77</b>		
NUMBER OF INTERPHONE CONDACTS PER INTERVAL	1.5	QI .	15	A	7	52	러	5	<b>m</b>	ന	N	က
% TIME SPENT ON COORDINATION COMMUNICATIONS ON INTERPHONE	m	e.0	. <b>н</b>	'n	OI.	OI.	6.0	H	4.0	CU.	o.5	0.7
AVERAGE BROADCAST TIME WITHIN INTERVAL (SECONDS)	77.3	323.3	256.8	184.8	193.6	126.4	151.6	139.4	214.5	173.1	187.2	251.1
NUMBER OF BROADCASTS PER INTERVAL	٥	4	9	۳.	in	٧٥	4	1-	<b>4</b>	٧	50	#
% TIME SPENT ON WEATHER AND NOTAM BROADCASTS	οι	18	ส	13	41	11	æ	<b>†</b> t	य	†r	£1.	77.
POSITION AND	20 April 1959 (1400-1600)	20 May 1959 (1400-1600)	20 May 1959 (1600-1800)	21 MBY 1959 (1400-1600)	21 May 1959 (1600-1800)	22 May 1959 (1600-1800)	23 May 1959 (0000-0200)	23 May 1959 (1030-1230)	23 May 1959 (1400-1603)	23 May 1959 (1500-1800)	24 May 1959 (1400-1600)	24 May 1959 (1600-1800)

### B. COORDINATION COMMUNICATIONS CHARTS

It is possible to classify interphone and ground-to-ground R/T communications in two distinct ways. This fact may be best illustrated by an example. A Miami Sector Controller may call the Miami Tower and request information about a specific military aircraft. This contact may be classified according to the party contacted (the Tower) or according to the aviation category discussed (military). The first cycle of charts shows schematically the distribution of coordination time based upon the party contacted. The final cycle shows the coordination time per plane based upon the aviation category classification scheme.

### 1. Coordination Communications Schematics

Figure IV-1 is a schematic of the Miami ATC communications network. It shows in general terms the communications links between the three facilities and other individuals and agencies.

Figures IV-2 to IV-12 show the composition of communications time for the individual interphone positions. The percentages in the small boxes were obtained from the actual tape transcriptions and represent the conditions that existed during the recording periods.

Once again the ground-to-ground R/T communications have been included. In the case of the three Station positions, which have both air-to-ground and ground-to-ground R/T communications, just the ground-to-ground R/T data were used for their respective schematics.

Figure IV-1

### SCHEMATIC OF MIAMI ATC COMMUNICATIONS COMPLEX

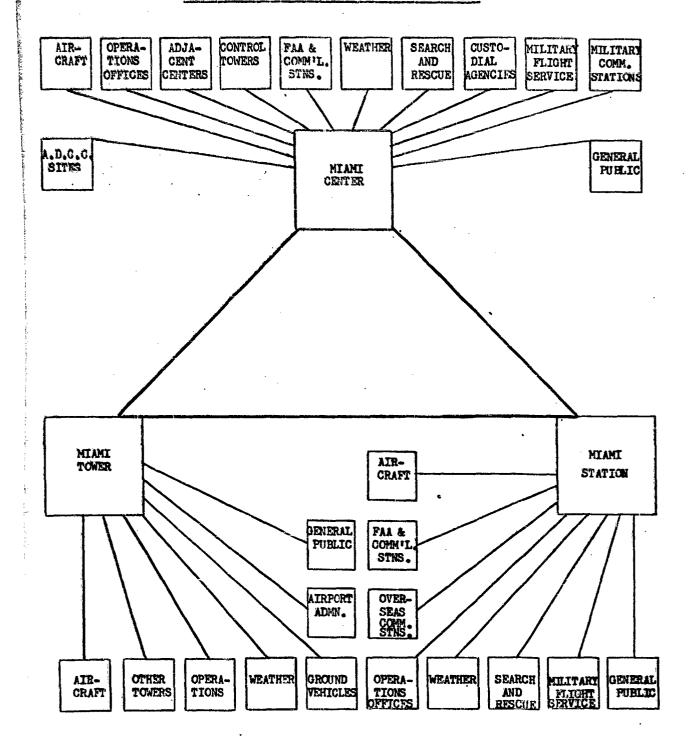


Figure IV-2

COMPOSITION OF INTERPHONE COMMUNICATIONS TIME

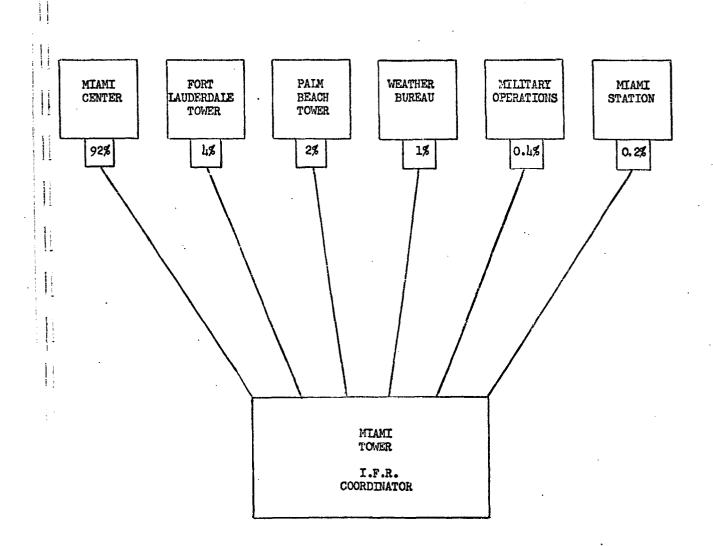


Figure IV-3
COMPOSITION OF INTERPHONE COMMUNICATIONS TIME

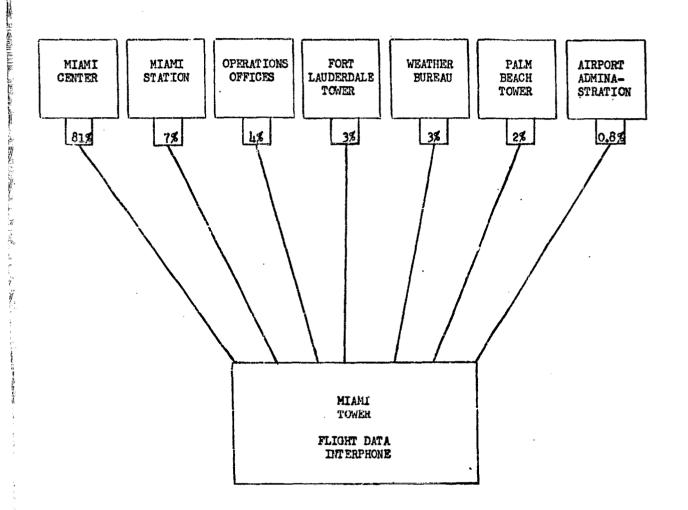


Figure IV-4

COMPOSITION OF INTERPHONE COMMUNICATIONS TIME

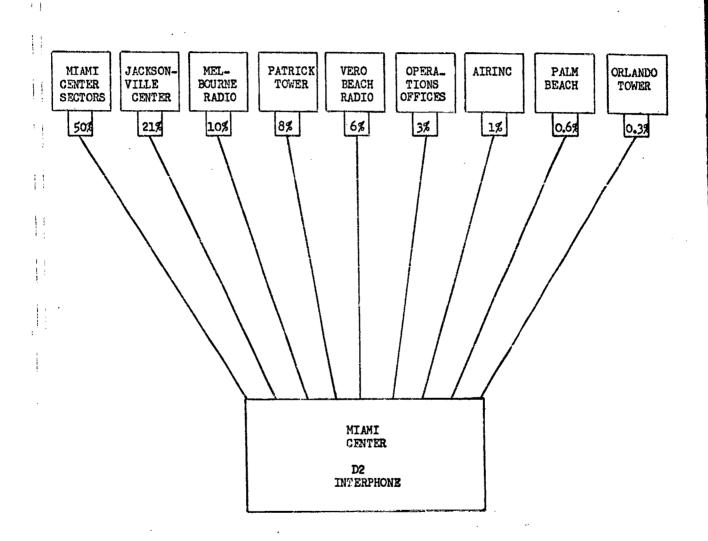


Figure IV-5 COMPOSITION OF INTERPHONE COMMUNICATIONS TIME

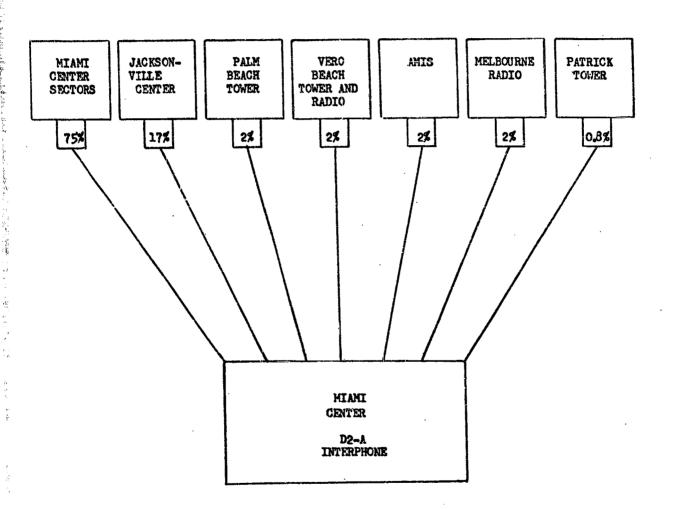


Figure IV-6
COMPOSITION OF INTERPHONE COMMUNICATIONS TIME

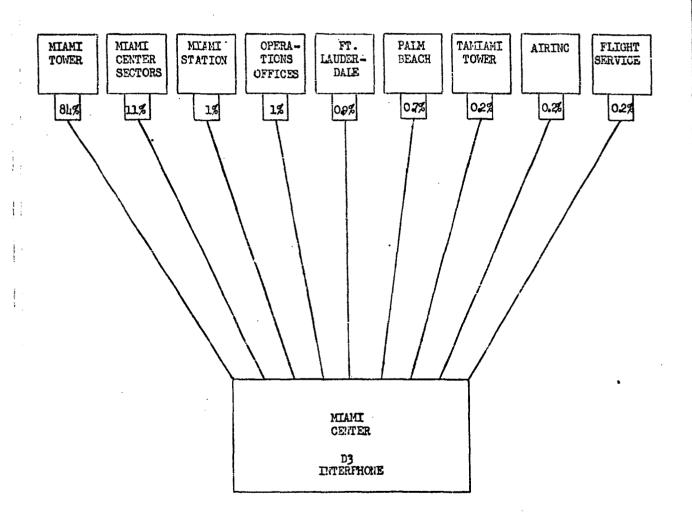


Figure IV-7
COMPOSITION OF INTERPHONE COMMUNICATIONS TIME

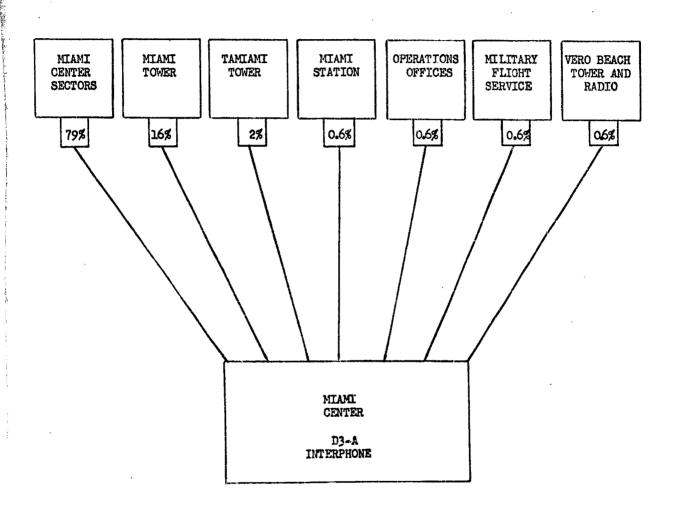


Figure IV-8
COMPOSITION OF INTERPHONE COMMUNICATIONS TIME

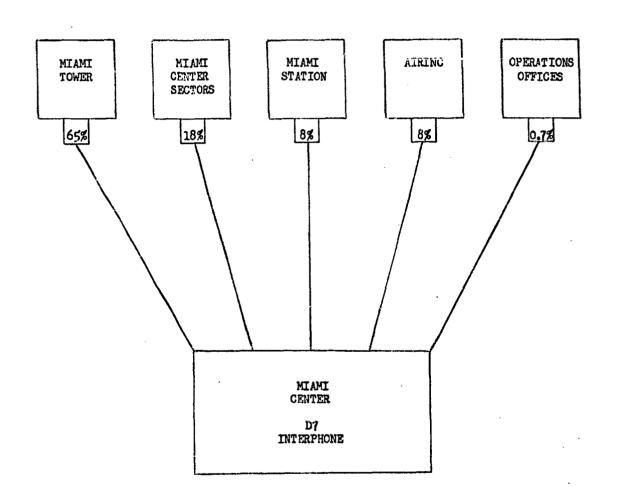


Figure IV-9

COMPOSITION OF R/T AND IP COMMUNICATIONS TIME

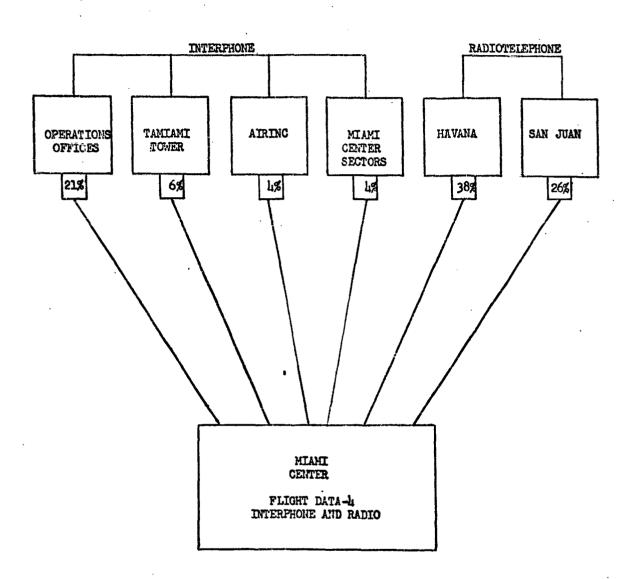


Figure IV-10

### COMPOSITION OF R/T AND IP COMMUNICATIONS TIME

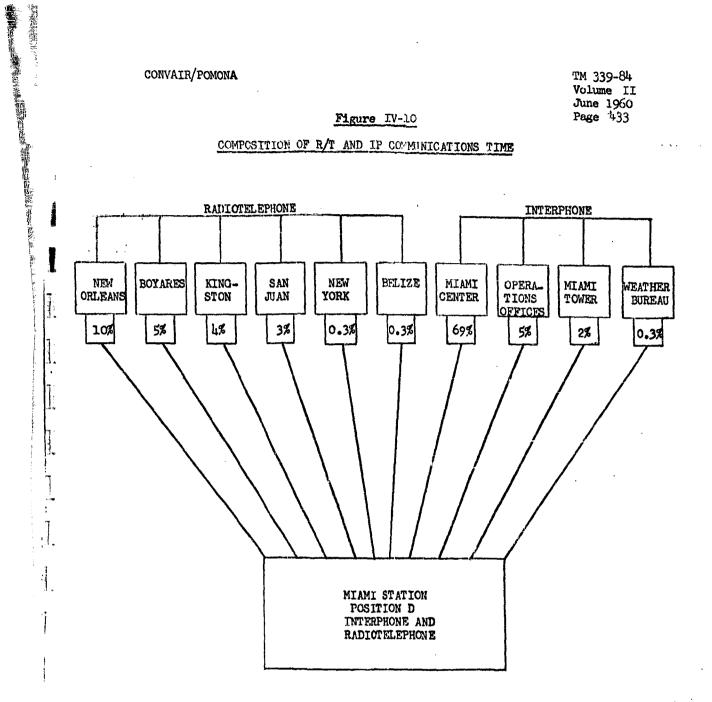


Figure IV-11

COMPOSITION OF R/T AND IP COMMUNICATIONS TIME

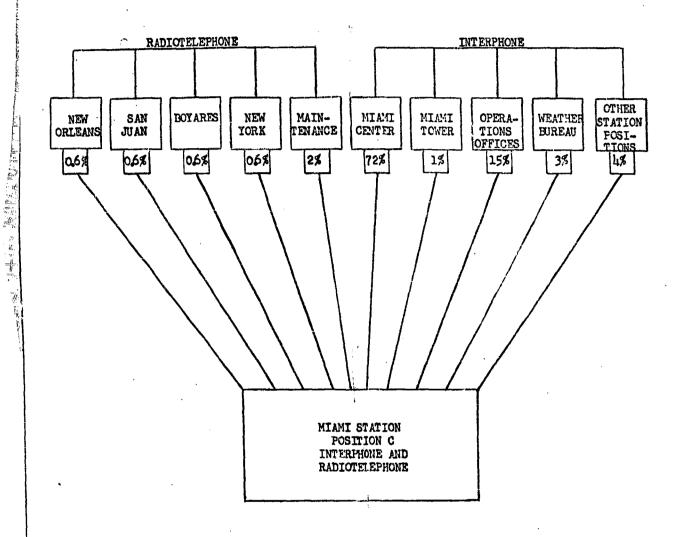
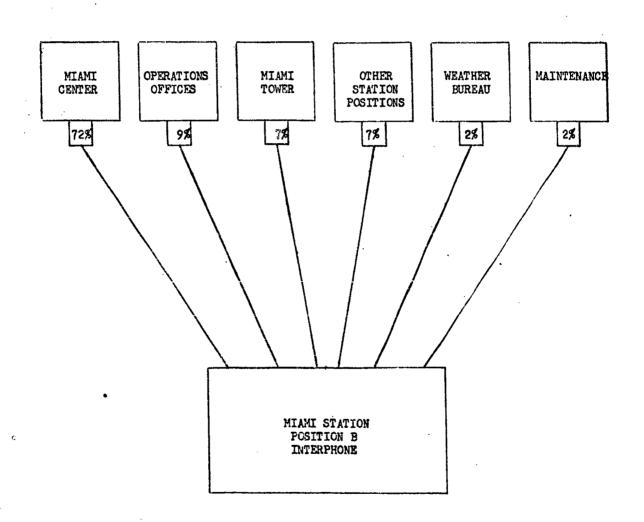


Figure IV-12
COMPOSITION OF INTERPHONE COMMUNICATIONS TIME

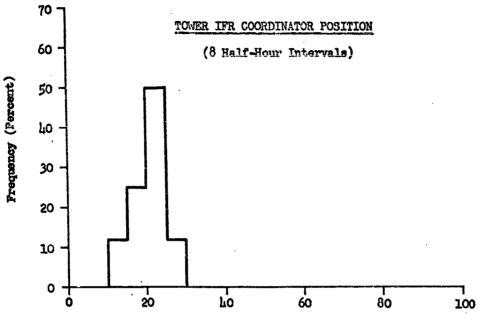


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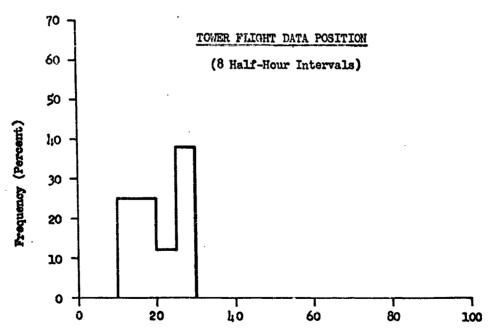
### 2. Frequency Functions for Percent of Time Spent on Coordination Communications

Figures IV-13 to IV-16 show the percentage of time spent on coordination communications in frequency histogram forms. The charts give an indication of the range of conditions encountered during the study as well as the average conditions. The percentages do not include any face-to-face coordination time for adjacent positions within a facility.

Figure IV-13
FREQUENCY FUNCTIONS FOR PERCENT OF TIME SPENT ON COORDINATION COMMUNICATIONS

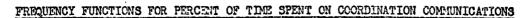


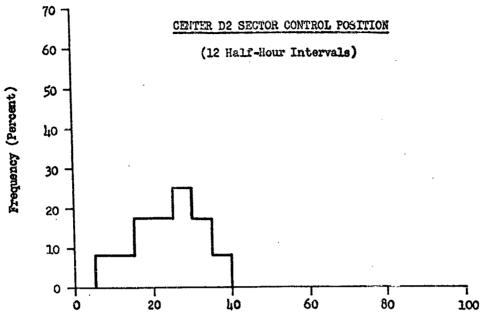
Time Spent on Coordination Communications per Interval (Percent)



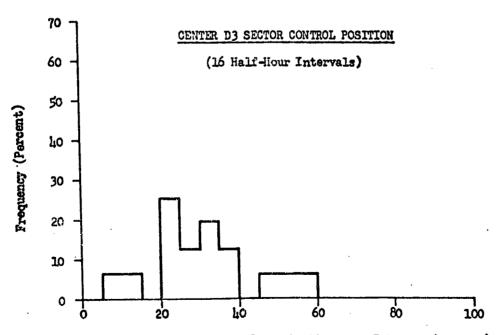
Time Spent on Coordination Communications per Interval (Percent)

Figure IV-14



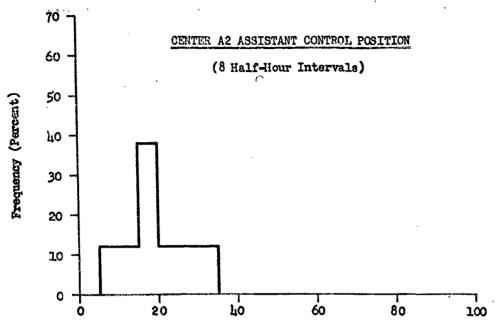


Time Spent on Coordination Communications per Interval (Percent)

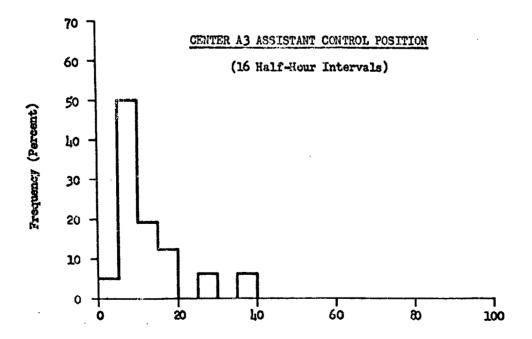


Time Spent on Coordination Communications per Interval (Percent)

### FREQUENCY FUNCTIONS FOR PERCENT OF TIME SPENT ON COORDINATION COMMUNICATIONS

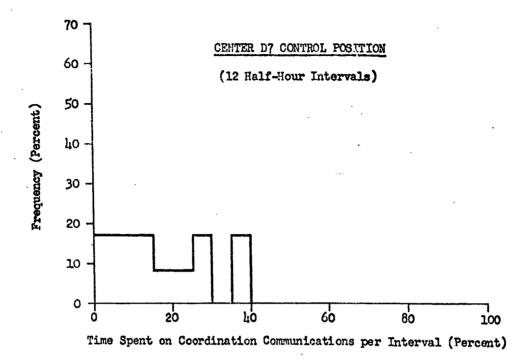


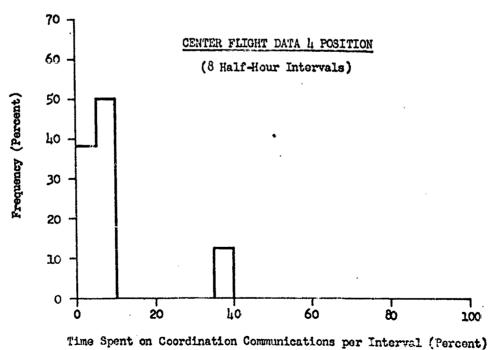
Time Spent on Coordination Communications per Interval (Percent)



Time Spent on Coordination Communications per Interval (Percent)

### FREQUENCY FUNCTIONS FOR PERCENT OF TIME SPENT ON COORDINATION COMMUNICATIONS





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### 3. Average Interphone Communications Time Per Contact

Figure IV-17 shows the overall average time per contact for each interphone position studied.

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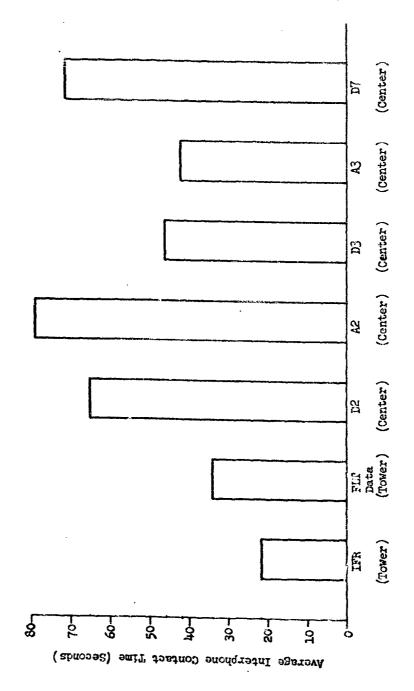


Figure IV-17

AVERAGE INTERPRONE COMMITCATIONS TIME PER CONTACT

### 4. Average Total Interphone Communications Time Per Plane Treated (by Interphone Position)

Figures IV-18 through IV-21 show the average interphone coordination communications time used by the various positions. The data have been broken down by aviation category. In almost all cases the average handling time for military aircraft was found to be the greatest.

Figure IV-18

AVERAGE TOTAL INTERPHONE COMMUNICATIONS TIME PER PLANE TREATED

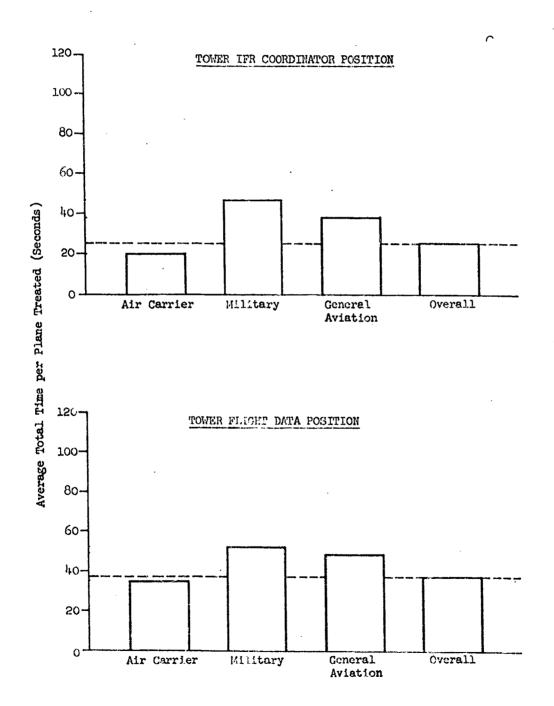
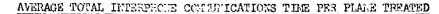
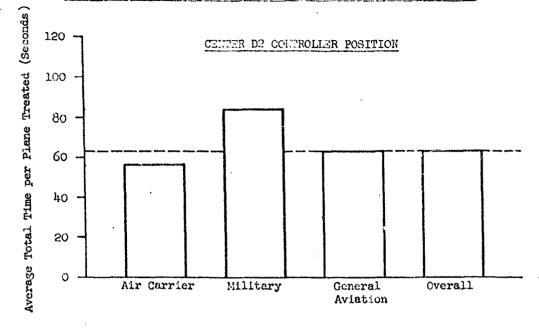


Figure IV-19





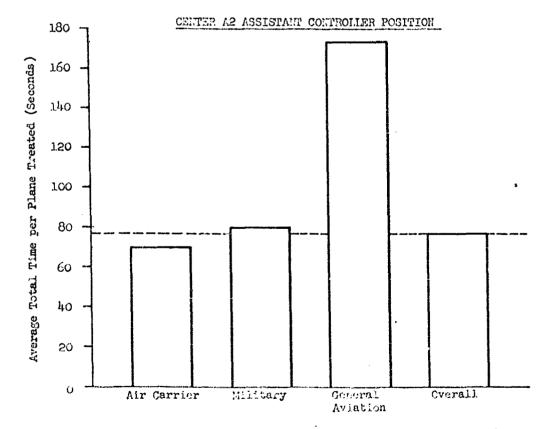


Figure IV-20

AVERAGE TOTAL INTERPHONE COMMUNICATIONS TIME PER PLANE TREATED

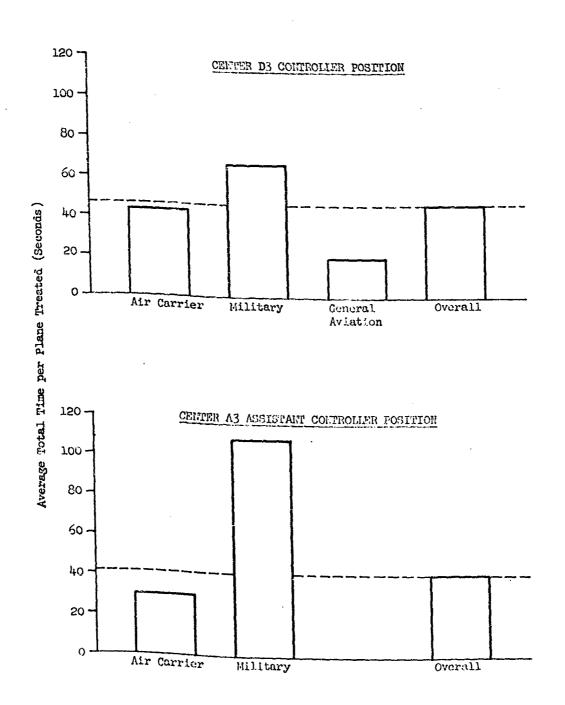


Figure IV-21

AVERAGE TOTAL INTERPROTE CONQUERCATIONS TIME PER PLACE THAT A THE

